DOCUMENT 00 0101

DESIGN-BUILD REQUEST FOR PROPOSALS AND PROJECT MANUAL

for

COUNTY OF KERN
KERN COUNTY BHRS PSYCHIATRIC HEALTH FACILITY

County of Kern
GENERAL SERVICES DIVISION

Construction Services Division
General Services Division of the
County Administrative Office
1115 Truxtun Avenue, 3rd Floor
Bakersfield, California 93301-4639

PROPOSAL DUE DATE:
December 14, 2020, BEFORE 5:00PM

DOCUMENT 00 0110

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REQUEST FOR PROPOSALS

The County of Kern ("Owner"), will receive competitive sealed Proposals from Design-Build Entities as described herein, for the following public work: Kern County Behavioral Health and Recovery Services Psychiatric Health Facility ("Kern County BHRS Psychiatric Health Facility" or "Project").

ARTICLE 1 – INTRODUCTION

1.01 Receipt of Proposals:

A. Owner will receive sealed Proposals at the General Services Office at the County of Kern Administrative Center, located at 1115 Truxtun Avenue, 3rd Floor, Bakersfield CA, on Friday, March 18, 2021. Proposals shall be due before 4:00 p.m., as determined by time and date stamp clock in the General Services lobby.

B. All Proposal envelopes will be time-stamped to reflect their submittal time. Owner will reject all Proposals received after the specified time and will return such Proposals to the Design-Proposers unopened.

C. Proposers are hereby notified that the U.S. Postal Service may not deliver parcels directly to the Purchasing Department. If a Proposer is delivering its Proposal via U.S. Postal Service, additional time may need to be allotted, as delays could result in the rejection of a Proposal.

D. Proposers are notified that this Project is subject to the requirements of Division 2, Part 7, Chapter 1 of the Labor Code (Public Works), and the requirements of Title 8. Division 1, Chapter 8. Subchapter 4.5 of California Code of Regulations (Compliance Monitoring and Enforcement by Department of Industrial Relations), including the obligation to furnish certified payroll records directly to the Labor Commissioner in accordance with 8 CCR 16461.

1.02 Proposal Requirements:

A. This Document 00 1119 sets forward terms and conditions for development, preparation, receipt, review and evaluation of the Proposals for the Project.

B. Each Proposer (also referred to as "Design-Build Entity" or "DBE") must submit its Proposal in accordance with this Document 00 1119.

C. Only those Design-Build Entities who pre-qualified pursuant to the County Prequalification Process for Design Build Entities, issued November 12, 2020, and any amendments, modifications or supplements thereto (the "Pre-Qualification Process"), are eligible to submit Proposals.

D. The maximum budget for the design and construction of the Project is $21,200,000 (Stipulated Sum Price). Any Proposal that does not result in a Project for a price less than or equal to this Stipulated Sum Price will be considered non-responsive and will not be considered. The County therefore recommends that any Proposer that is unable or unwilling to do so should withdraw from the Proposal competition.

1.03 Bridging Documents:

A. Bridging Documents describe the mandatory scope and needs of the Project.

B. Bridging Documents are made available under Document 00 5201 (Bridging Documents).

1.04 Critical Success Factors:

A. Critical Success Factors ("CSF") are those issues that the County Project Team and its project consultants have agreed are essential to the success of this Project, and are the core essence of the Proposer's responsibility. It is essential that the Proposer be responsive to the CSF and use the CSF as a guide in both the development of the response to the RFP, and in the design and construction of the requirements of the Kern County BHRS Psychiatric Health Facility Design Build Package. All Proposals will be reviewed and evaluated in light of the Critical Success Factors.

1. The Kern Behavioral Health Recovery Services Psychiatric Health Facility must be staffed, occupied, and entirely operational by March 24, 2023. The Activation phase, is three months, which will require Design-Build Entity to successfully complete all aspects of its work per the Contract Documents no later than December 2022.

2. Kern County's General Services and Kern County Behavioral Health and other stakeholders have been integrally involved in developing the bridging documents for the project. The Design-Build Entity will be expected to exhibit and foster ongoing teamwork and collaboration with this project team in every aspect of the effort to complete the project design, construction, start-up and testing, commissioning, transition, completion and activation

3. The Design-Build Entity will be expected to:

    a. Fulfill all obligations of DBE under the Contract Documents;

    b. Fulfill all obligations of "Contractor" under the Agreement;

    c. Comply with the requirements of all Federal, State, County, and other authorities having jurisdiction regulations for required reviews, approvals, permits, construction, inspection, and record keeping;

    d. Create a Project that is energy efficient and uses sustainable design elements and construction practices and minimizes life-cycle costs;

e. Utilize the full capabilities of BIM to maximize the accuracy and efficiency of the design process, quality of construction and to facilitate transition to facility maintenance and a computerized maintenance management system;

i. Significantly reduce or eliminate Change Orders during construction resulting from clashes between the works of different disciplines by conducting “Clash Analysis” of the work product of various disciplines (e.g., structural and mechanical elements).

ii. Increase the effectiveness of drawing coordination during design and resolving coordination issues that arise as the result of changes or additional design information developed during construction.

iii. Deliver an As-Built model including the appropriate data suitable for use and implementation into a facilities management system to be determined at a later date.

The Bridging Architect’s drawings may be available to the DBE, upon execution of the “Electronic Data Transfer Agreement”. The Bridging Architect’s drawings may be made available in an “as-is” condition and the DBE may use the model at their discretion, and shall assume all responsibility for its use. The DBE will be required to develop a BIM model to the levels defined in Specification Section 013554 and agreed to in the final BIM Execution Plan, regardless of the Criteria Architect’s drawing completeness and at no additional cost to the Owner.

f. Thoroughly start-up and test and commission new systems to ensure efficient and reliable operation and compliance with performance requirements established in the Bridging Documents; and

g. Systematically furnish all required warranties, operation and maintenance manuals, and record documents and successfully transition and train facility staff, closing out the Project with no defects.

B. The CSF are the minimum standards that must be implemented under this Project.

C. To receive additional points during evaluation and to provide the best value to the Owner within the Stipulated Sum, optional Additive Enhancements (Voluntary) as listed in paragraph 3.02F and can be used as long as the total cost is within the Stipulated Sum.

D. Proposers may include additional Enhancements in their Proposals. All enhancements must be of high quality, add significant value, provide benefit to Owner and be beyond the minimum requirements established in the RFP.

E. The Bridging Documents represent the minimum requirement of the Kern BHRS PHF Project and an item will not be considered an Enhancement if it is utilized to meet an “or equal” requirement.

F. Owner retains the right to decline any Enhancements.

ARTICLE 2 – PROPOSAL DEVELOPMENT

2.01 Pre-Proposal Conference and Site Visit, And Confidential Meetings:

A. A Mandatory Pre-Proposal Conference will be conducted on February 1, 2021 at the General Services Office located on the third floor of the County of Kern Administrative Center, located at 1115 Truxtun Avenue, Bakersfield CA, at a specific time to be announced. Proposers are encouraged to email questions in advance of the conference. At the conference, each Proposer should be prepared to schedule a Project site visit with appropriate KERN BHRS PHF personnel, to take place before the Proposer's first confidential meeting.

B. Owner will transmit to all Proposers any Addenda as Owner in its discretion considers necessary in response to questions arising at the Pre-Proposal Conference, mandatory site visit or from confidential meetings. Proposers shall not rely upon oral statements; nor shall oral statements be binding or legally effective.

2.02 Existing Conditions and Related Data:

A. Refer to Document 00 3100 (Available Project Information) and Document 00 3132 (Geotechnical Data and Existing Conditions).

2.03 Addenda:

A. Proposers must direct to Owner all questions about the meaning or intent of this Document 00 1119 and other Proposal Documents. Proposers must submit their questions by email. Owner will issue by formal written Addenda interpretations or clarifications it considers necessary in response to such questions.

B. Owner will send by email Addenda to each pre-qualified Proposer to the address supplied to Owner by each of them. Owner may not respond to questions received after February 18, 2021. Only questions answered by formal written Addenda shall be binding. Oral and other interpretations or clarifications will be without legal effect.

C. If Owner deems advisable, Owner may also issue Addenda to modify the Proposal Documents.

D. Addenda shall be acknowledged in Proposal Form by number and shall be part of the Contract Documents. Proposers may obtain a complete listing of Addenda from Owner.

2.04 Other Requirements Prior To Proposing:

A. Submission of a Proposal signifies the Proposer's careful examination of Proposal Documents and complete understanding of the nature, extent and location of Work to be performed.

B. Proposer must complete the required investigations described in Document 00 7253 (General Conditions), as a condition to submitting a Proposal, and submission of Proposal shall constitute the Proposer's express representation to Owner that Proposer has fully completed these required investigations.

ARTICLE 3 – CONTENT OF PROPOSALS

3.01 General Proposal Submission – Contents:

A. Each Proposer shall submit its Proposal to the Owner at the address indicated herein.

B. Each Proposer shall submit proposals neatly organized in three (3) ring ("D-ring" type) binders with the appropriate table of contents and tabs / dividers for:

1. One (1) complete original Kern County BHRS Psychiatric Health Facility Project Proposal with original signatures and all required deliverables. Separate from the copies and clearly marked as "ORIGINAL"

2. Eight (8) copies of the Kern County BHRS Psychiatric Health Facility Project Proposal and all required deliverables.

3. Written text: 8 1/2-inch x 11-inch sheets of paper organized in three (3) ring binders.

4. Drawings: 1/2 size standard edge bound and stapled.

5. Five (5) thumb drives with an electronic copy of the Kern County BHRS Psychiatric Health Facility Project Proposal and all required deliverables.

C. Proposers shall submit their Proposals and all deliverables in a manner that is structured to permit easy and definitive evaluation of each Factor identified herein as Evaluation Factors.

D. Proposals shall be deemed to include any written responses of a Proposer to any questions or requests for information of Owner made as part of the Proposal evaluation process after submission of the Proposal.

E. The Proposal must contain the following, fully completed (and where applicable, executed) documents:

1. Document 00 4200 (Proposal Form).

   a. The Proposal Form must be completed as indicated therein. Proposers must provide information for all items, including Additive Enhancements (Voluntary), and Other Alternates. Information regarding Other Alternates must either be attached to Proposal Form or be included elsewhere in Proposal.

2. Proposal Security.

   a. Proposers must submit with their Proposals cash, a certified check or cashier's check from a responsible bank in the United States, or a corporate surety bond furnished by a surety authorized to do surety business in the State of California, of not less than 10% of the proposed Contract Sum (i.e., $2,120,000.00), payable to the County of Kern.

b. Owner will provide the required form of corporate surety bond, Document 00 4316 (Bond Accompanying Proposal), if used.

c. Owner will reject as non-responsive any Proposal submitted without the necessary Proposal security. Owner may retain all Proposal securities and Proposal bonds until the later of 60 days after Proposal opening or execution of the Contract and deposit of all necessary bonds and other items, at which time Owner shall return the Proposal securities and Proposal bonds of any non-defaulting Proposer.

3. Document 00 4330 (Subcontractors List), identifying all Subcontractors who will participate in the Contract which are known as of the Proposal date (in accordance with Public Contract Code §20133((d)(3)(A)(i)).

4. Document 00 4516 (Design-Build Entity Certifications), signed and completed (and including any attachments) as indicated therein.

5. Document 00 4520 (Non-Collusion Declaration), subscribed and sworn before a notary public. No Proposer may make or file or be interested in more than one Proposal for the same supplies, services or both.

6. Document 00 4530 (Iran Contracting Act Certifications), signed and completed as indicated therein.

7. Letter from Surety. A letter from a surety duly licensed to do business in the State of California, having a financial rating from A. M. Best Company of A-, VII or better, confirming that surety has agreed to provide Design-Build Entity with performance and payment bonds in accordance with the requirements set forth in the Contract Documents 00 6113.13 (Construction Performance Bond) and 00 6113.16 (Construction Labor and Material Payment Bond), with minimum penal sums in the amounts set forth therein.

8. Letter from Insurer. A letter from an insurance underwriter, having a financial rating identified in Document 00 7316 (Supplementary General Conditions – Insurance and Indemnification), confirming that the insurer will provide the coverages and amounts required for Design-Build Entity specified in the Contract Documents.

9. Material Changes List. If Proposer is unable to certify in Document 00 4516 (Design-Build Entity Certifications) that all information it submitted to Owner in connection with the Pre-Qualification Process remains true and correct in all material respects as of the date of submitting its Proposal, a list of all such changes ("Material Changes List"), accompanied by the same types of information that Proposer was required to submit for as part of the Pre-Qualification Process.

10. Technical Proposal Submission, containing the following items, as further described or referenced in paragraph 3.02 below:

a. Proposed Staffing and Designated Subcontractors

b. Proposed Design and Design Approach; Life-Cycle Costs

c. Draft Project Management Plan

d. Preliminary Baseline Design / Construction Schedule including Staffing Plan

e. Base Items

f. Enhancements (Additive and Voluntary)

F. To assist in County evaluation, Proposers are encouraged to organize their Technical Proposal Submissions based on the following eight Evaluation Factors, as further described in paragraph 4.04 below:

1. Proposed Team Technical Design and Construction Expertise

2. Proposed Design and Design Approach

3. Base Project Pricing

4. Project Pricing – Additive Enhancements (Voluntary)

5. Draft Project Management Plan

6. Preliminary Baseline Design / Construction Schedule

7. Life Cycle Costs over 30 Years

8. Quality of Proposal / Presentation and Questions

3.02 Technical Proposal Submission:

A. Proposed Staffing and Designated Subcontractors

1. Submit a list of the proposed staffing for the Project; the listing must include all key team personnel previously approved in the Pre-Qualification Process, and include at a minimum the specific positions indicated below, and such others as Owner may request before Proposal date ("Key Personnel"). Substitutions will not be permitted without prior approval of the County. Additional staff required but not part of the Pre-Qualification Process should be added. See also paragraph 3.02D below.

a. Overall Project Manager

b. Design Manager

c. General Superintendent

d. Superintendent

e. Architect of Record

f. Design Architect

g. Quality Control Manager

2. DBE's MUST provide an organizational chart that defines the Project Management and Staffing Plan -- All Planned Project Personnel -- for both the preconstruction and construction portions of the Project.

3. DBE's should include resumes demonstrating the qualifications of the Key Personnel on the Organizational Chart for the project. DBE's MUST provide a table showing the planned staffing during both preconstruction and construction phases. The table shall list all individuals assigned to perform work directly on the project and indicate name, job classification, existing employees or employees to be hired, or non-employees (Independent Consultants), the hours each individual is assigned to each Phase of the project and the total of all hours planned to be expended during each phase over the course of the project.

4. DBE's MUST provide a "staffing" fee breakdown, expanded sections of the "table" listed above to include hourly rates for the staffing levels identified including a total cost for each staff member and a bottom line total cost for ALL staff identified in the "table" for both "preconstruction" and "Construction" phases. The hourly rates for staff shall include all applicable staff costs EXCLUDING overhead and profit.

5. All Subcontractors who are known to be performing portions of the Work on Proposal day (Designated Subcontractors) must be identified in Document 00 4330 (Subcontractors List). All Subcontractors not designated or trade not performed by the Design-Build Entity must be competitively bid and awarded by the Design-Build Entity. Designated Subcontractors will not require public bidding beyond this RFP process.

6. All Subcontractors working on Project Site, whether included in Proposal or otherwise, must have an Experience Modification Rate (EMR) of 1.00 or less.

B. Proposed Design and Design Approach; Life-Cycle Costs

1. General: Prepare written documents listed below to depict the Proposer’s design in response to the County’s requirements. The submittal requirements listed below are minimum requirements. Proposer may submit additional materials in their KERN BHRS PHF Proposal. Additional materials submitted by the Proposer may or may not be reviewed by the County at the County’s sole discretion. Internet links to websites are not permitted.

2. Design narrative may include diagrams, graphic illustrations, conceptual sketches and ideas, exhibits, and photographic images. 8-1/2-inch x 11-inch Format. (Site plans, conceptual floor plans, grading plans, etc. to be scaled to fit standard drawing sheet size (30-inch x 42-inch) with 1/2 size sheets required for submittal).

3. Building Program Report: Spreadsheet format indicating all proposed program spaces with both net and gross square footages as compared to the required building program and gross square footages of the Project. Deviations from the required building program gross square footages are to be clearly highlighted. Additions to the County's issued Specifications are to be clearly noted. 8-1/2-inch x 11-inch Format ***(Note, each proposer should present a draft version of this document at its first confidential meeting.)***

4. Prepare conceptual design plans that illustrate the character (design theme for the KERN BHRS PHF Project), including conceptual drawings and preliminary additional Additive Enhancements (Voluntary) as necessary to describe the Architect's design intent.

    a. Site Plan: Overall site plan including the size and locations of the proposed elements, and all landscape, and hardscape (including parking), integration with existing facilities, access and security. Provide conceptual drawings to assure visual unity between areas all site components and building forms.

    b. Conceptual Floor Plans: 1/16" = 1'-0" Scale (minimum) overall plans of the proposed building elements.

5. Technical Approach Plans for the KERN BHRS PHF Facility and Site including backup documentation as appropriate, to identify the proposed types, integration, and operations of systems for the facility illustrating the best value for the County. Technical approach plans are to include:

    a. Narrative(s) detailing the basic approach.

    b. Conceptual layout(s) of building systems.

    c. Proposed systems including a description of types, efficiencies, quantities and capacities.

    d. Approach to maintaining and servicing proposed systems.

    e. Narrative(s) outlining the proven track record(s) of the proposed systems and vendors including tried and tested processes, systems and capabilities.

6. On- and Off-Site Civil and Utilities Systems:

    a. Provide a narrative description and where applicable, conceptual drawings of the proposed civil engineering design and approach, including the proposed unique design features, conformance with the Contractors Storm Water Pollution Prevention Plan, sustainability features and energy conservation for the best value for the County.

7. Provide a conceptual Grading Plan, including a narrative and backup documentation as appropriate, to address the approach and sequence of grading activities. Include your approach to efficiently design and install building pads.

8. Prepare conceptual Site Utility Plans with points of connection including: Sanitary Sewer, Domestic and Fire Water, Storm Drain, Gas and Electrical services.

9. Include hard and soft calculations which demonstrate the level of energy efficiency, as well as a Statement regarding the Proposers' experience in using such programs.

10. Submit a Life-Cycle Cost (LCC) analysis of proposed systems describing the Proposer's approach for evaluating alternatives and developing cost effective designs, systems and components as part of sustainable design. Life-cycle benefit analyses must be shown as present value amounts using a 5.5% discount rate, 25 year life-cycle period, 3% energy costs escalation rate, 3% personnel / staff escalation rate and 2% maintenance cost escalation rate. Proposer's LCC analysis should take into account its proposed Base Project plus Additive Enhancements (Voluntary) reflected in Document 00 4200 (Proposal Form).

C. Draft Project Management Plan

Submit a draft Project Management Plan that addresses all the following: (in no particular order):

1. Communication Plan, including:

   a. Proposer's Organization and Lines of Communication

   b. Electronic Communications, including requirements for a Site Project website (to be provided by Design-Build Entity)

   c. Meetings and Conferences Plan

2. Quality Assurance / Quality Control Plan

3. Construction Traffic Management Plan

4. Safety Plan

5. Commissioning Plan

6. BIM Execution Plan

D. Preliminary Baseline Design / Construction Schedule, including Staffing Plan

1. Submit a preliminary baseline design / construction schedule to complete the Work – "Kern Behavioral Health Recovery Services Psychiatric Health Facility Project Proposal Schedule" - incorporating critical milestones and events known or understood by the Project Proposer, i.e. coordination with other projects planned at the site. The schedule must represent the Project Proposer's intended plan for completing the Work within the contract time, and comply with Section 01 3200 Progress Schedules and Reports paragraph 2.03C.

2. The preliminary schedule shall include a Key Personnel staffing schedule, indicating all periods when each of the Key Personnel (as defined in paragraph 3.02A above) are anticipated to be committed to working on the Project, and other information in Section 01 3200 paragraph 3.02C.3.

3. In developing the Preliminary Baseline Design / Construction Schedule the Project Proposer should consider activities, logic, durations, and milestones related to the following:

   a. Systems / Design Confirmation

      Completion / confirmation / review and approval by Kern County and Local Fire Marshal in addition to all Authorities Having Jurisdiction of design activities for each project component as necessary to document Design-build Entity's specific approach to meet the design guidelines and performance requirements required by Bridging Documents, and as required to construct the KERN BHRS PHF Project including, but not limited to:

      1. On and off-site utilities

      2. Site grading and geotechnical requirements

      3. Facility design and construction

   b. KERN BHRS PHF Stakeholder Reviews

      Proposed review and confirmation activities and durations for KERN BHRS PHF stakeholder team during program confirmation, systems confirmation, design, construction, submittal review, start-up and testing, commissioning, and project close-out. Stakeholders may include, but are not limited to:

      1. Kern County General Services

      2. Kern County Behavioral Health Recovery Services

      3. Kern County Information Technology Department

      4. Kern County Building Department

      5. Kern County Fire Department

   c. Regulatory Agency Reviews

      Proposed review and approval activities and durations during design, construction, commissioning, and project close-out including, but not limited to:

      1. Kern County Building Department

      2. City of Bakersfield Public Works (Offsite Utilities, Road Improvements)

3. Vanir Construction Management (Inspections)

4. All additional Authorities Having Jurisdiction

d. In planning the project activities, durations, and milestones, the Proposer should consider the following:

Review and approvals periods required by federal, state, county and other authorities having jurisdiction, regulatory review and approvals

1. Assume 15 work day turn-around for KERN BHRS PHF Stakeholder reviews of major submittals including submittals required by regulatory agencies.

2. Include requirements for building 3rd party commissioning.

E. Base Items

1. Work of Contract Documents. This comprises all work of Contract Documents including Bridging Documents.

2. Allowances. There are no allowances on this project.

3. Subtotal: The sum of the Work of Contract Documents and Allowances shall be identified here and may or may not exceed the Stipulated Sum of $21,200,000.

F. Enhancements (Additive and Voluntary)

1. An Enhancement is a demonstrated benefit to the Project that is beyond the minimum requirements established in the RFP. (See paragraph 4.04.B.3, paragraph 404.B.4 below, and Document 00 4200 (Proposal Form) Schedule of proposal Prices, for scoring the Enhancements.)

2. If Proposer is unable to propose a Project that does not exceed the Stipulated Sum, the Proposal will be deemed responsive ***only*** if the Proposer also includes in its Proposal Form one or more "Deductive Items" and / or "Alternative Technical Concepts" which ***both*** (a) comprise a Project that meets the CSF's and (b) permit the Proposer to propose a Project for a price that does not exceed the Stipulated Sum.

a. Proposers are not encouraged to propose Deductive Items.

b. County will determine acceptability of Deductive Items and Alternative Technical Concepts in its sole discretion.

3. Project includes (2) Additive Enhancements (Voluntary):

   a. Provide Additive Enhancement of a galvanized painted 12' tall secure steel frame fabrication with non-climbable metal screening and integrated canopies. with minimum 10 year warranty and 30 year expected life. A design influence example is provided here: https://www.betkoinc.com/new-gallery/wolthzpn9lzkm5tkqu4jf0imhux0wl

   b. Art Budget (Allowance): Provide Additive Enhancement of a Art Budget in the amount of $38,000.000 to cover the cost of interior graphics / signs (in addition to the code related signs specified in Section 10 1400 and dimensional letters specified in Section 10 1419) and prints. The Owner will work with the selected contractor on what shall be provided with in this budget amount. The value of this Enhancement is exactly $38,000.00.

4. In addition to the Additive Enhancements, Proposers are encouraged to propose other enhancements that could improve the Project, referred to as "Voluntary Enhancements." Voluntary Enhancements may include, without limitation, the following:

   a. Furnish extended warranties and guarantees for major equipment.

   b. Any design feature that would increase safety and security for staff and / or clients beyond that required by the Bridging Documents.

   c. Any design feature or material specification that would increase reliability / durability of facility operations or reduce the cost of facility maintenance beyond that required by the Criteria Documents.

   d. Increased longevity and durability for equipment or materials.

   e. Extend roofing warranties from 10 to 20 years for buildings with roofing membranes.

   f. Reduce or compress project delivery schedule.

5. All Proposers must include pricing for each individual Additive Enhancement and Voluntary Enhancement on Document 00 4200 (Proposal Form) Schedules 1-A and 1-B, respectively.

6. For each Deductive Item, Alternative Technical Concept, Additive Enhancement (Voluntary), and Voluntary Enhancement, submit the following:

    a. A unique identification number (to be used in Proposal Form Schedule 1-A or 1-B, as applicable);

    b. A narrative description of the Deductive Item, Alternative Technical Concept, Additive Enhancement (Voluntary) or Voluntary Enhancement;

    c. A list / description of benefits to the County;

    d. Affected Specification / Bridging Documents section references and changes (if applicable);

    e. New performance criteria (if applicable);

    f. New concept drawings (if applicable);

    g. A comparison between the original Specification / Bridging Documents requirements and the proposed change; and

    h. Cost benefit analysis (if applicable).

7. County will take Deductive Items, Alternative Technical Concepts, Additive Enhancements (Voluntary), and Voluntary Enhancements into account in determining **Contract Sum** only if actually included in Contract, either at time of award (see Document 00 5100 Notice of Conditional Award and Document 00 5200 Agreement paragraph 1.02.B) or, with respect to Additive Enhancements (Voluntary), Voluntary Enhancements, Alternative Technical Concepts and Deductive Items, subsequently as an Alternate (see Section 01 1100 Summary of Work para. 1.04 and paragraph 3.02.F.8 below).

8. All Deductive Items, Alternative Technical Concepts, Additive Enhancements (Voluntary), and Voluntary Enhancements which are not included in Contract at time of award may become Alternates. Owner may add any Deductive Items, Alternative Technical Concepts, Additive Enhancements (Voluntary), and Voluntary Enhancements to Contract, at price indicated in Document 00 4200 (Proposal Form) Schedules 1-A, 1-B, as applicable, by notifying Design-Build Entity no later than the date indicated for each item in Schedules 1-A, 1-B, as applicable (”County Decision Point Date”). See also Document 00 5200 (Agreement) paragraph 1.03.

G. Exclusions / Differences in Contractor Controlled Insurance Program (CCIP) Option

1. Document 00 7316 (Insurance and Indemnification), Exhibit I, Article 2, identifies Contractor Controlled Insurance Program ("CCIP") and other insurance requirements the successful Proposer will need to comply with if Owner elects to have Design-Build Entity provide certain insurance under a CCIP, in lieu of Owner providing that insurance under an Owner Controlled Insurance Program (OCIP). Proposal Form includes CCIP Option as an Alternate (which shall not be taken into account in evaluating Proposers for award of Contract). See also Section 01 1100 Summary of Work para. 1.04.

2. In addition to providing CCIP Option pricing in Proposal Form, Proposer's Technical Proposal Submission must include a section identifying all (if any) CCIP Option terms that Design-Build Entity would be unable to satisfy or comply with if Owner elects the CCIP Option, and any material differences between Proposer's CCIP and the CCIP described in Document 00 7316.

3. Owner may elect to utilize an OCIP, CCIP or any other insurance program in its sole discretion.

3.03 Proposal Guide

To aid Proposers in preparing and submitting their Proposals, the following is provided as a guide:

A. The certification of the Stipulated Sum must be without any conditions and / or alterations and / or exceptions.

B. Design-Build Agreement administration refinements, conditions regarding price escalation, Design-Build Agreement language modifications, value engineering to attain County's budget, additional allowances that limit the extent of work, modifications to RFP documents that reduce the RFP requirements or scope of work, and / or infer pre-approval of substitutions etc., or any other conditions, clarifications that reduce the requirements and / or infer a pre-approval of a change to the requirements or a conditional acceptance of the KERN BHRS PHF Project Proposal will not be allowed and may be the basis for considering the KERN BHRS PHF Project Proposal to be non-responsive at the sole discretion of the County.

C. Substitutions: It is the intent of the County to utilize the creative expertise of the Proposers. The requirements of the Contract Documents establish the design intent, level of quality, utility and special requirements. Proposers may propose, as Voluntary Enhancements, Alternative Technical Concepts alternate materials, methods, and means to achieve the required results. However, the burden of compliance with the intent of Bridging Documents remains with the Proposer.

D. ***The evaluation of the Proposals during this selection phase is not intended to be final judgment on the validity or acceptability of alternate solutions.***

E. Proposals for substitutions must be made in conformance with the Contract Documents and be made on a system-wide basis such that the County is not asked to piecemeal its review of individual elements of a system. The County will reasonably cooperate in considering and reviewing substitutions and / or modifications. The County is not required, however, to approve substitutions and / or modifications that would change or reduce the performance standards, intended use, and / or value of the Project.

F. The acceptance of, and / or the issuance of a stipend in connection with the KERN BHRS PHF Project Proposal, does not constitute acceptance by the County that any or all of the proposed elements are in conformance with the Contract Documents.

G. The Proposer is responsible for foreseeable site conditions and hazardous materials to the extent described in the Proposal Documents and / or that could be reasonably inferred by the Proposers based on their experience and expertise on similar projects.

H. Proposers are required to perform their own site investigations.

ARTICLE 4 – PROPOSAL RECEIPT AND EVALUATION

4.01 General:

A. Proposals will be evaluated in a two-stage process. In the first stage ("Stage 1"), all pre-qualified Proposers will participate. In the second stage ("Stage 2"), after review and meetings, Proposers will be asked to submit best and final Proposals, and if award is to be made it will be based on the best and final Proposal.

B. The Proposers who are not awarded the Contract are eligible to receive a stipend of $20,000 for their participation in the Proposal process. In exchange for eligibility to receive the stipend, participation in the Proposal process, and subject to compliance with the obligations herein, all pre-qualified Proposers shall agree to the following conditions:

1. Any pre-qualified Proposer not awarded the Contract shall agree not to protest the award of the Contract to a different pre-qualified Proposer.

2. All Proposal documents and other submissions and concepts discussed by any pre-qualified Proposer shall become the property of the County.

C. Any pre-qualified Proposer that fails to submit a responsive Proposal (including without limitation withdrawing from the competition), and any finalist Proposer that fails to submit a responsive best and final Proposal, shall not receive a stipend.

4.02 Proposal Receipt and Evaluation:

A. Owner shall date and time stamp Proposals on receipt. Proposals will not be opened publicly, but may become public as described below.

B. Owner will open the Proposals, and perform a preliminary review to identify any patently defective Proposals. Owner action on defective Proposals may include refusal to evaluate such Proposals and elimination from the Proposal process. Owner reserves all rights to take any action consistent with the requirements of this Document 00 1119 (Request for Proposals), including, without limitation, requesting additional information after receipt and opening of Proposals and waiving any inconsequential defects.

C. All Proposals from Proposers which remain after the preliminary review shall be evaluated by one or more Selection Committee(s), which will be comprised of individuals selected by the Owner. The Selection Committee(s) will review the Proposals and award points using the methodology described in this Document 00 1119.

4.03 Interviews / Presentation:

A. Following receipt and evaluation of Proposals, each Proposer may be invited to a 2-hour, confidential and proprietary interview / presentation. The interview / presentations are anticipated to take place during the week of February 8, 2021. At that time, each Proposer will have an opportunity to discuss its Proposal in detail with the Selection Committee. This may be another opportunity for County to request additional clarification. In these interviews, the Proposer and its team of contractors, architects, engineers, and specialty consultants will present the Proposal, and respond to questions from the Selection Committee. Each Proposer must have their proposed key personnel assigned to the KERN BHRS PHF Project present as the primary representatives during this process. The interview / presentation will be hosted by each Proposer at a venue chosen by the County of Kern in Bakersfield, CA. The specific date(s) and times for each Proposer's interview will be established and announced at a later date.

B. Following the interview / presentations, Owner will request the finalists to submit best and final Proposals (Stage 2), and the deadline for submission.

C. Owner reserves the right to establish additional procedures for the interview / presentations, and will notify all Proposers if Owner exercises this right.

D. In evaluating Proposals (both Stage 1 and Stage 2), Owner will consider the information provided in the Proposer's Proposals, the Proposer's compliance with the prescribed requirements, and such other data as may be requested in this Document 00 1119 (Request for Proposals), Proposer's interview / presentation, or any other items provided prior to the issuance of Document 00 5050 (Notice of Intent to Award). Owner's evaluation of Proposals will follow the methodology described in this Document 00 1119.

E. Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Proposal and to establish the Proposer's responsibility, qualifications and financial ability, proposed designers, subcontractors, suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents and Proposer's proposed price to Owner's satisfaction within the prescribed time. Owner shall have the right to communicate directly with Proposers' Surety regarding Proposer's bonds.

F. Owner will resolve discrepancies between (1) the multiplication of units of Work and unit prices in favor of the unit prices; (2) the indicated sum of any column of figures and the correct sum thereof in favor of the correct sum; and (3) written words and figures, or words and numerals, in favor of the words.

4.04 Evaluation Factors / Best Value:

A. Maximum Points for Each Evaluation Factor For each of Stage 1 and Stage 2, Owner will evaluate each Proposal based upon the following factors, with the maximum number of points allocated to each factor as indicated in the Points Matrix below.

EVALUATION FACTORS		Maximum Points
I.	Proposed Team Technical Design and Construction Expertise	**20**
II.	Proposed Design and Design Approach	**20**
III.	Base Project Pricing	**25**
IV.	Project Pricing – Additive Enhancements (Voluntary)	**10**
V.	Draft Project Management Plan	**5**
VI.	Preliminary Baseline Design / Construction Schedule	**10**
VII.	Life-Cycle Costs over 30 Years	**5**
VIII.	Quality of Proposal / Presentation and Questions	**5**
	Total Maximum	**100**

B. Evaluation Factor Description

1. Factor # I: Technical Design and Construction Expertise of Proposed Dedicated Staff Team (including Designers and Subcontractors)

   a. The Proposer whose proposed team, including designers and Designated Subcontractors (see paragraph 3.02A above), is determined by Owner to be the most qualified, when compared with the teams proposed by the other Proposers, will receive the maximum number of points for this factor. All other Proposers will receive fewer points, as determined by Owner.

2. Factor # II: Proposed Design and Design Approach to Architectural Aesthetics, Design Innovation and Project Requirements

   a. The Proposer whose proposed Project design, and approach to designing the Project, in a manner which provides Owner with the best combination of quality, utility, strategic approach to designing the project, architectural aesthetics of the proposed design solutions, and design innovation, while still complying with all Project Operational, Performance and quality requirements (see paragraph 3.02B above), is determined by Owner to be the best, when compared with the design and approaches proposed by the other Proposers, will receive the maximum number of points for this factor. All other Proposers will receive fewer points, as determined by Owner.

   b. For purposes of this evaluation factor: The term "architectural aesthetics of the proposed design solutions" shall broadly encompass the totality of a Proposer's proposed design approach and innovative solutions, including the quality and responsiveness of any Plans, Drawings, Schematics, Specifications, and similar Design Documents submitted with the Proposal. Presentation drawings which adequately depict the proposed appearance, functionality and layout of the facility are highly encouraged.

3. Factor III: Base Project Pricing

   a. This factor is divided into three categories, each with a designated number of points, based on what Project features each Proposer will provide for the Stipulated Sum of $21,200,000. See Document 00 4200 Proposal Form, Part I and Part II.

   b. As described in more detail in the Proposal Form, Stipulated Sum (or less) Proposal submissions will fall into one of these categories:

      1) ***Total Base Price with No Deductions***
      Proposers whose Total Base Price, as described in more detail in Document 00 4200 Proposal Form, does not exceed $21,200,000 with no Deductive Items and providing best value will receive the most points for this factor.

      2) ***Total Base Price with Deductions***
      Proposers whose Total Base Price, as described in more detail in Document 00 4200 Proposal Form, does not exceed $21,200,000 utilizing Deductive Items will receive scores lower than proposers with no deductions. Deductions can vary widely in scope, therefore, scores will be determined by Deductive Items used, as necessary to not exceed $21,200,000, based on best value related to the nature, extent and quality of the proposed deduction(s)

3) ***Total Base Price with Deductions and / or Alternative Technical Concepts***

Proposers whose Total Base Price, as described in more detail in Document 00 4200 Proposal Form, does not exceed $21,200,000 utilizing some combination Deductive Items and / or Alternative Technical Concepts will be scored lower than proposers without Alternative Technical Concepts and / or Deductive Items. The Owner will determine scores based best value related to the nature, extent and quality of the proposed deductions or alternative concepts.

c. Any Proposer that does not agree to provide any Proposal Package for the Stipulated Sum of $21,200,000 will be considered non-responsive (see paragraph 1.02 above).

4. Factor IV: Project Pricing – Additive Enhancements (Voluntary)

a. This factor includes Additive Enhancement (Voluntary) contained in each Proposal while still meeting the Stipulated Sum (or less) of $21,200,000. The Owner will score each Proposal between 0 and 10 points depending on the desirability, value and utility of the proposed enhancements.

5. Factor # V: Draft Project Management Plan

a. The Proposer whose draft Project Management Plan, including the clarity of the intent of each individual item and the continuity of all items comprising the overall plan (see paragraph 3.02C above), is determined by Owner to be the most thorough, comprehensive, and likely to achieve the highest quality project, when compared with the draft management plans proposed by the other Proposers, will receive the maximum number of points for this factor. All other Proposers will receive fewer points, as determined by Owner.

6. Factor # VI: Preliminary Baseline Design / Construction Schedule

a. The Proposer whose Preliminary CPM Schedule (see paragraph 3.02D above) is determined by Owner to show a (i) recognition of and understanding of the tasks necessary to complete the Project, (ii) clear identification of the process requirements for each of the project stakeholders and all governing agencies that will affect the project, (iii) acknowledgement of critical milestones, and (iv) efficiencies that can be achieved in project delivery and also, (v) the earliest realistically achievable completion dates, when compared with the Preliminary Baseline Design / Construction Schedules proposed by the other Proposers, and which includes a Key Personnel staffing schedule consistent with the proposed progress of the Work, will receive the maximum number of points for this factor. All other Proposers will receive fewer points, as determined by Owner.

7. Factor # VII: Life Cycle Costs over 30 Years

   a. Owner is interested in constructing new facilities whose sustainable design results in a low life cycle cost as calculated over a thirty (30) year period and in assessing realistically achievable ideas for costs savings / enhancements / and / or proposed systems to reduce the project's operating costs. As such, Owner will evaluate Each Proposer's Life-Cycle Cost (LCC) analysis and estimate the reasonably anticipated life cycle costs over 30 years associated with each Proposal, based on each Proposer's Base Project Plus Enhancements reflected in Part II of Schedule of Proposal Prices in Document 00 4200 (Proposal Form), and taking into account (i) replacement costs of any systems / components whose service lives do not exceed 30 years, and (ii) annual price increases and present value discounts identified in paragraph 3.02.B.9. The Proposer whose Proposal is (1) estimated to have the least expensive life-cycle costs over 30 years and (2) determined to contain the most realistic proposals for cost savings shall receive the maximum number of points for this factor. All other Proposers will receive fewer points, as determined by Owner.

8. Factor # VIII: Quality of Proposal / Presentation and Questions

   a. The Proposer whose Proposal is determined by Owner to be the most thorough, comprehensive, and likely to achieve the highest quality project, when compared with the Proposals by other Proposers, will receive the maximum number of points for this factor. All other Proposers will receive fewer points, as determined by Owner.

C. Best Value; Tie Breaker: The Proposal that receives the greatest total number of points based on the above Evaluation Factors shall be considered to provide the Best Value to the Owner. In the event of a tie, pursuant to Public Contract Code Section 20150.9, the County reserves the right to select the Proposal which, in the Owner's sole discretion, is determined to provide a superior design and construction solution with regard to sustainability, efficiency, systems and processes, as compared to the other Proposal receiving a tied score, and shall be considered to provide the Best Value to the Owner.

4.05 Modification / Addition of RFP Procedures:

A. Owner reserves the right to modify existing procedures and / or establish additional procedures for the Proposal process, and will notify all Proposers if Owner exercises this right.

ARTICLE 5 – AWARD

5.01 Notice of Intent to Award:

A. If the Contract is to be awarded, Owner will notify the responsive Proposer whose best and final Proposal is determined to provide the Best Value to the Owner. Owner shall issue Document 00 5050 (Notice of Intent to Award). Owner shall electronically mail the Notice to all Proposers who submitted best and final Proposals and all parties who requested that the Owner provide such notice. The Notice shall identify the Design-Build Entity recommended for award.

5.02 Award of Contract:

A. Upon completion of Owner's evaluation of all Proposals, including without limitation all required action by the Owner's Board of Supervisors, Owner shall issue Document 00 5100 (Notice of Conditional Award), which shall identify the next-two highest ranked Proposers.

B. Document 00 5100 (Notice of Conditional Award) shall, among other things, identify which Additive Enhancements (Voluntary), Voluntary Enhancements, Deductive Items and Alternative Technical Concepts will be included in Work at time of award. Additive Enhancements (Voluntary), Voluntary Enhancements, Deductive Items and Alternative Technical Concepts may become Alternates, each of which will be subject to acceptance by County at the respective prices, and, with respect to Enhancements, until the respective dates (each, a "County Decision Point Date"), specified in the successful Proposer's final Document 00 4200 (Proposal Form) Schedules 1-A and 1-B.

5.03 Post-Notice of Award Requirements:

A. After Notice of Conditional Award, the successful Design-Build Entity must submit the documents listed in items 1 and 6 below no later than 5:00 p.m. on the date that is five (5) business days after issuance of Notice of Conditional Award. Execution of the Contract is dependent upon approval of these documents:

1. Document 00 5200 (Agreement): To be executed by the successful Design-Build Entity. Submit seven (7) copies, each bearing all required original signatures.

2. Document 00 6113.13 (Construction Performance Bond): To be executed by successful Design-Build Entity and surety, in the amount set forth in Document 00 6113.13 (Construction Performance Bond). Submit three (3) copies, each bearing all required original signatures.

3. Document 00 6113.16 (Construction Labor and Material Payment Bond): To be executed by successful Design-Build Entity and surety, in the amount set forth in Document 00 6113.16 (Construction Payment Bond). Submit three (3) copies, each bearing all required original signatures.

4. Document 00 6536 (Guaranty): To be executed by successful Design-Build Entity, in the form set forth in Document 00 6536 (Guaranty). Submit seven (7) copies, each bearing all required original signatures.

5. Insurance forms, documents, certificates and endorsements required by Document 00 7316 (Supplementary Conditions – Insurance and Indemnification). Submit one (1) copy, each bearing all required original signatures.

6. Any other document specified in Document 00 5100 (Notice of Conditional Award).

5.04 Failure to Execute and Deliver Documents:

A. If the Design-Build Entity to whom the Contract is awarded fails or neglects to execute and deliver all required Contract Documents including bonds, insurance certificates and other documents, as required in paragraph 5.03 above, Owner may, in its sole discretion, deposit the Design-Build Entity's surety bond, cashier's check or certified check for collection, and retain the proceeds as liquidated damages for Design-Build Entity's failure to enter into the Contract Documents. Design-Build Entity agrees that calculating the damages Owner may suffer as a result of the Design-Build Entity's failure to execute and deliver all required Contract Documents and other required documents would be extremely difficult and impractical and that the amount of the Design-Build Entity's required Proposal security shall be the agreed and presumed amount of Owner's damages.

5.05 Right to Reject Proposals:

A. Owner may reject any and all Proposals and waive any informalities or minor irregularities in the Proposals at its sole discretion. Owner also reserves the right, in its discretion, to reject any or all Proposals and to re-issue a new Request for Proposals for the Project. Owner reserves the right to reject any or all nonconforming, non-responsive, unbalanced or conditional Proposals, request other proposals and to reject the Proposal of any Design-Build Entity if Owner believes that it would not be in the best interest of the Owner to make an award to that Design-Build Entity, whether because the Proposal is not responsive or the Design-Build Entity is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner. Owner also reserves the right to waive informalities, inconsequential deviations or minor irregularities not involving price, time or changes in the Work, to the fullest extent permitted by law. For purposes of this paragraph, an unbalanced Proposal is one having nominal prices for some work items and enhanced prices for other work items.

ARTICLE 6 – GENERAL CONDITIONS AND REQUIREMENTS

6.01 Contact Information:

Mailing and street address of Owner's main office:

ATTN: Nicole Parker, Contract Specialist
County of Kern Administrative Center, General Services – Construction Division,
1115 Truxtun Avenue, Third Floor
Bakersfield, California 93301-4639
Telephone: (661) 868-3054
Fax: (661) 868-3030
Email: nparker@kerncounty.com

Owner's Program Managers / Construction Managers:

ATTN: Scott Murphy, Project Director
Vanir Construction Management, Inc.
2444 Main Street, Suite 130
Fresno, California 93721
Telephone: (559) 801-1569
Email: scott.murphy@vanir.com

6.02 Wage Rates:

A. Design-Build Entities are required to comply with all applicable state and federal prevailing wage requirements and / or regulations. Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the State of California Department of Industrial Relations, are on file at Owner's main office and are deemed included in the Proposal Documents. Upon request, Owner will make available copies to any interested party. State prevailing wage requirements are published by the Director of the State of California Department of Industrial Relations and can be found online at www.dir.ca.gov.

6.03 Equal Employment Opportunity:

A. Design-Build Entity shall comply with all applicable federal, state, and local laws, rules, and regulations in regard to nondiscrimination in employment because of race, color, ancestry, national origin, religion, sex, marital status, age, medical conditions, disability, or any other reason.

6.04 Ownership of Documents:

A. All materials, including copyrights for original design work, submitted by Design-Build Entity in response to this Request for Proposals shall become the property of the Owner.

6.05 Public Records Act Requests:

A. Pursuant to the California Public Records Act, Owner will make available to the public Design-Build Entity's Proposals (to the extent opened), all correspondence and written questions submitted during the Proposal period, all Proposal submissions opened in accordance with the procedures of this Document 00 1119, and all subsequent Proposal evaluation information. Any submissions not opened will remain sealed and eventually be returned to the submitter. Except as otherwise required by law, Owner will not disclose trade secrets or proprietary financial information submitted that has been designated confidential by Design-Build Entity. Any such trade secrets or proprietary financial information that a Design-Build Entity believes should be exempted from disclosure shall be specifically identified and marked as such. Blanket-type identification by designating whole pages or sections shall not be permitted and shall be invalid. The specific information must be clearly identified as such.

B. All materials included with and Information disclosed in the Proposal and the attendant submissions are the property of Owner. Subject to the requirements in the Public Records Act, reasonable efforts will be made to prevent the disclosure of information except on a need-to-know basis during the evaluation process.

6.06 Definitions:

A. Except as set forth herein, all abbreviations and definition of terms used in these Instructions are set forth in Document 00 7253 (General Conditions) or Specifications Section 01 4200 (References and Definitions).

END OF DOCUMENT

DOCUMENT 00 2100

ACCESS, INDEMNITY AND RELEASE AGREEMENT
(If Invasive Testing is Allowed)

Dated _____

POTENTIAL DBE: _____

OWNER: COUNTY OF KERN
SITE: 616-806 Workman St. Bakersfield, CA 93307
PROJECT: Kern County BHRS Psychiatric Health Facility Project

In consideration of the above-referenced Owner's permitting the undersigned potential Design-Build Entity ("DBE") to have access to, and to conduct investigations, tests and/or inspections on the Site ("access"), and effective upon such access, DBE hereby agrees as follows:

1.01 To the greatest extent permitted by law, including without limitation California Civil Code Section 2782, DBE hereby releases, and shall defend, indemnify and hold harmless Owner, and its officers, employees, consultants, representatives, and agents, and all other parties having any other interest in the Site, against any claim or liability, including attorney's fees, arising from or relating to any Site-related access, investigation, test, inspection and/or other activity conducted by DBE or any of DBE's officers, employees, consultants, representatives, and / or agents, regardless of whether claim or liability is caused in part by the negligence of Owner or by any released and indemnified party.

1.02 DBE hereby waives the provisions of California Civil Code Section 1542 which provides as follows:

> A general release does not extend to claims which the creditor does not know or suspect to exist in his or her favor at the time of executing the release, which if known by him or her must have materially affected his or her settlement with the debtor.

1.03 DBE shall repair any damage to the Site or adjacent property resulting from activities authorized hereunder, and comply with and be subject to all other requirements and obligations described or referenced in Document 00 3132 (Geotechnical Data and Existing Conditions).

1.04 Attached hereto (or to be delivered separately before DBE's visit to the Site) is a certificate for comprehensive general liability insurance satisfying the requirements of Document 00 7253 (General Conditions).

1.05 Although this Access, Indemnity and Release Agreement is not a Contract Document (see Document 00 5200 (Agreement)), it shall be fully effective and binding regardless of whether DBE submits a Proposal for the subject Project, is awarded a contract for the Project, or otherwise.

DBE: _____

By: _____
Signature

Its: _____
Title (If Corporation: Chairman, President or Vice President)

By: _____
Signature

Its: _____
Title (If Corporation: Secretary, Assistant Secretary, Chief Financial Officer or Assistant Treasurer)

END OF DOCUMENT

DOCUMENT 00 3100

AVAILABLE PROJECT INFORMATION

ARTICLE 1 – INFORMATION PROVIDED TO CONTRACTORS PRIOR TO PROPOSAL

1.01 The following files were made available to all prospective Contractors prior to the submission of Proposals for the Project Work.

1.02 The following data, reports and information were provided solely for information purposes only and are not part of the Contract Documents.

A. Kern County BHRS Psychiatric Health Facility – Geotechnical Investigation, dated June 10, 2020.

1. Geotechnical Engineering Investigation, Proposed Psychiatric Health Facility, Workman Street and Zephyr Lane, Bakersfield, Kern County, California by Krazan & Associates, Inc. (attached).

B. Kern County BHRS Psychiatric Health Facility – Hydrology Report, dated May 22, 2020.

1. Hydrology Report (version 1) by WSP (attached).

END OF DOCUMENT

DRAFT

GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED PSYCHIATRIC HEALTH FACILITY
WORKMAN STREET AND ZEPHYR LANE
BAKERSFIELD, KERN COUNTY, CALIFORNIA

PROJECT NO. 022-20048
JUNE 10, 2020

Prepared for:

MR. KIM DOMINGO
COUNTY OF KERN CONSTRUCTION SERVICES DEPT.
1115 TRUXTUN AVENUE, 3RD FLOOR
BAKERSFIELD, CALIFORNIA 93301

Prepared by:

KRAZAN & ASSOCIATES, INC.
GEOTECHNICAL ENGINEERING DIVISION
2205 COY AVENUE
BAKERSFIELD, CALIFORNIA 93307
(661) 837-9200

DRAFT

Krazan & ASSOCIATES, INC.

GEOTECHNICAL ENGINEERING • ENVIRONMENTAL ENGINEERING
CONSTRUCTION TESTING & INSPECTION

June 10, 2020 KA Project No. 022-20048

Mr. Kim Domingo
County of Kern Construction Services Dept.
1115 Truxtun Avenue, 3rd Floor
Bakersfield, California 93301

RE: Geotechnical Engineering Investigation
Proposed Psychiatric Health Facility
Workman Street and Zephyr Lane
Bakersfield, Kern County, California

Dear Mr. Domingo:

In accordance with your request, we have completed a Geotechnical Engineering Investigation for the above-referenced site. The results of our investigation are presented in the attached report.

If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (661) 837-9200.

Respectfully submitted,
KRAZAN & ASSOCIATES, INC.

David R. Jarosz, II
Managing Engineer
RGE No. 2698/RCE No. 60185

DRJ:ht

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Krazan & ASSOCIATES, INC.

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GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED PSYCHIATRIC HEALTH FACILITY
WORKMAN STREET AND ZEPHYR LANE
BAKERSFIELD, KERN COUNTY, CALIFORNIA

INTRODUCTION

This report presents the results of our Geotechnical Engineering Investigation for the proposed Psychiatric Health Facility to be located at Workman Street, near Zephyr Lane in Bakersfield, Kern County, California. Discussions regarding site conditions are presented herein, together with conclusions and recommendations pertaining to site preparation, Engineered Fill, utility trench backfill, drainage and landscaping, foundations, concrete floor slabs and exterior flatwork, retaining walls, pavement design and soil cement reactivity.

A site plan showing the approximate boring locations is presented following the text of this report. A description of the field investigation, boring logs, and the boring log legend are presented in Appendix A. Appendix A contains a description of the laboratory testing phase of this study, along with the laboratory test results. Appendices B and C contain guides to earthwork and pavement specifications. When conflicts in the text of the report occur with the general specifications in the appendices, the recommendations in the text of the report have precedence.

PURPOSE AND SCOPE

This investigation was conducted to evaluate the soil and groundwater conditions at the site, to make geotechnical engineering recommendations for use in design of specific construction elements, and to provide criteria for site preparation and Engineered Fill construction.

Our scope of services included the following:

- A site reconnaissance by a member of our engineering staff to evaluate the surface conditions at the project site.
- A review of available data for evaluation of subsurface conditions at the project site.
- Aerial photograph interpretation.
- A search of geologic and seismologic literature pertaining to the area of the site.
- Evaluation of potential geologic hazards.

- A field investigation consisting of drilling 6 borings to depths ranging from approximately 20 to 50 feet for evaluation of the subsurface conditions at the project site.

- Performing laboratory tests on representative soil samples obtained from the borings to evaluate the physical and index properties of the subsurface soils.

- Evaluation of the data obtained from the investigation and an engineering analysis to provide recommendations for use in the project design and preparation of construction specifications.

- Preparation of this report summarizing the results, conclusions, recommendations, and findings of our investigation.

PROPOSED CONSTRUCTION

We understand that design of the proposed development is currently underway. Some of the final details pertaining to the structures are unavailable. It is understood the proposed development will include the construction of a 31,932 square foot (footprint) new Psychiatric Health Facility. It is anticipated the building will be a single- or two-story structure utilizing concrete slab-on-grade. Maximum wall and column loads are anticipated to be 1.5 kips per foot and 25 kips, respectively. On-site paved areas and landscaping are also planned for the development of the project. It is understood that storm water run-off will be diverted to an existing sump at an off-site location.

In the event, these structural or grading details are inconsistent with the final design criteria, the Soils Engineer should be notified so that we may update this writing as applicable.

SITE LOCATION, SITE HISTORY AND SITE DESCRIPTION

The site is located within the southern portion of the San Joaquin Valley, within the east-central portion of the City of Bakersfield, in Kern County, California (see Vicinity Map, Figure 1). The site is rectangular in shape and encompasses approximately 5 acres of vacant land located in a partially developed area. The site is bound to the east by Workman Street, vacant land, and commercial developments; to the north and south by existing commercial developments; and to the west by a waste water treatment facility. The center of the site is located at longitude 118.95375° West and latitude 35.34810° North. The US Geological Survey, Lamont, California 7.5-minute Quadrangle, dated 1992, indicates that surface elevations in the vicinity of the site are on the order of 374 to 372 feet above mean sea level. A watercourse identified as the Kern River is located approximately 4.8 miles northwest of the subject site. A waste water treatment facility is located adjacent west of the site. The East Side Canal is located approximately 4.2 miles northeast of the site.

Site history was obtained by reviewing historical aerial photographs taken in 1937, 1942, 1952, 1957, 1968, 1973, 1984, 1992, 2006, 2009, 2012 and 2016. Review of the 1937 aerial photograph indicates that the property consisted of vacant land. A dirt road trended north-south along the western edge of the site. The remainder of the site was predominately surrounded by vacant land.

Review of the 1942 aerial photograph indicates that the project site conditions appeared to be relatively similar to that noted in the 1937 aerial photograph, with a possible trail trending north-northwest through the southwest corner of the site.

Review of the 1952 aerial photograph indicates that the site had been planted in row crops.

Review of the 1957 aerial photograph indicates that the project site conditions appeared to be relatively similar to that noted in the 1952 aerial photograph. A waste water pond had been constructed adjacent west of the site.

Review of the 1968 and 1973 aerial photographs indicate that the project site conditions appeared to be relatively similar to that noted in the 1957 aerial photograph.

Review of the 1984 aerial photograph indicates that the project site is once again vacant land, and the row crops have been removed from the site.

Review of the 1992 aerial photograph indicates that the project site conditions appeared to be relatively similar to that noted in the 1984 aerial photograph, with an additional trail added to the northern portion of the site.

Review of the 2006 aerial photograph indicates that the project site conditions appeared to be relatively similar to that noted in the 1992 aerial photograph. Workman Street has been constructed along the east side of the site.

Review of the 2009 and 2012 aerial photographs indicate that the project site conditions appeared to be relatively similar to that noted in the 2006 aerial photograph, with commercial developments added to the adjacent properties to the north and south.

Review of the 2016 aerial photograph indicates that the project site conditions appeared to be relatively similar to that noted in the previous aerial photographs.

The conditions shown on the aerial photographs indicate the site predominately consisted of agricultural land prior to the land being cleared. With the exception of several lineal features identified as vehicle trails and streets, no distinct lineaments, tonal variations, or other potential fault related features are shown on or adjacent to the property in the aerial photographs.

The site is presently vacant undeveloped land. Concrete curb and gutter are present along the eastern site boundary. Buried utility lines are associated with the existing surrounding developments. The site contains very sparse amounts of weeds and the surface soils have a loose consistency. The area of proposed development is relatively level with no major changes in grade.

No evidence of surface faulting was observed on the property during our reconnaissance. No evidence of slope failures or instabilities were observed on the subject property or adjoining properties.

GEOLOGIC SETTING

General

The subject property is located along the eastern margin of the southern San Joaquin Valley portion of the Great Valley Geomorphic Province of California. The San Joaquin Valley is bordered to the north by the Sacramento Valley portion of the Great Valley, to the east by the Sierra Nevada, to the west by the Coast Ranges, and to the south by the Transverse Ranges. The San Joaquin sedimentary basin is separated from the Sacramento basin to the north by the buried Stockton arch and associated Stockton Fault. The buried Bakersfield arch near the south end of the valley separates the relatively small Maricopa-Tejon subbasin at the south end of the San Joaquin basin from the remainder of the basin. The 450-mile long Great Valley is an asymmetric structural trough that has been filled with a prism of Mesozoic and Cenozoic sediments up to 5 miles thick.

The Sierra Nevada, located east of the San Joaquin Valley, is gently southwesterly tilted fault block comprised of igneous and metamorphic rocks of pre-Tertiary age that comprise the basement beneath the San Joaquin Valley. The Coast Ranges, located west of the San Joaquin Valley, are comprised of folded and faulted sedimentary and metasedimentary rocks of Mesozoic and Cenozoic age.

The Kern River is the principal river in the area. Alluvial fans formed by this river are the predominant geomorphic features in the Bakersfield area. The area of the subject site is characterized by low alluvial fans and plains, which constitute a belt of coalescing alluvial fans of low relief between the dissected uplands, adjacent to the Sierra Nevada and the valley trough. This has resulted in a rather flat topography in the vicinity of the project site. The site is comprised of alluvial deposits which are mostly sands silts and clays.

A Regional Geologic Map, Regional Geologic Cross-Section, and Local Geologic Map are presented on Figures 4, 5, and 6, respectively.

Lithology

The thick accumulation of deposits within the San Joaquin Valley range in age from Jurassic to Holocene and include both marine and continental rocks and deposits. The 1964 Geologic Map of California, Bakersfield Sheet, indicates that the near-surface deposits in area of the subject site are identified as Quaternary Fan and Basin deposits.

The 1984 Geologic Map of the southeastern-San Joaquin Basin, California (J. Allan Bartow, 1984) further defines the near-surface deposits in the area of the subject site as younger alluvium consisting of Holocene and Pleistocene sand, gravel, silt, and clay in modern channels and underlying modern flood plains, abandoned channels, lowest terraces along streams, and undissected alluvial fans, including boulder gravels near the mouth of the Kern River gorge; and older alluvium consisting of Pleistocene sand, gravel, silt, and clay underlying terraces along modern streams or in isolated high terraces removed from modern streams, and in dissected alluvial fans. Relative age of alluvial units inferred from relative topographic position, degree of soil development, and degree of modification; underlying low to medium-high terraces along modern streams and in undissected old alluvial fans.

The subsurface information obtained in this study indicates that the surface and near-surface soil deposits at the subject site generally consist of sandy silts, silty sands, and sands. These observed deposits are consistent with those mapped in the area, and are further described in the Soil Profile and Subsurface Conditions section of this report.

Structure and Faults

The general area of the subject site is underlain by a homoclinal series of Cenozoic deposits dipping 4 degrees to 6 degrees to the southwest toward the center of the San Joaquin Valley. The contact between the Cenozoic and basement rocks dips nearly 8 degrees southwest, or at a slightly greater inclination than does the on-lapping homoclinal Cenozoic sequence. A slightly elevated basement structure, the Bakersfield Arch is located in the vicinity of the site. This structure is considered to have controlled sedimentation within the far southern portion of the valley.

The south end of the San Joaquin Valley is bordered on the west, south, and east by three major fault systems: the San Andreas, Garlock, and Breckenridge-Kern Canyon faults, respectively. All three of these faults zone appear to be directly related to the uplifting of the mountain ranges in which they are located and the downwarping of the intermediate land mass which constitutes the San Joaquin Valley portion of the Great Valley Geosyncline. The forces which have resulted in the formation of these major fault zones and the continuing movements along them have had great influence locally in the valley floor in the form of folding and faulting of the thick section of sedimentary beds and the underlying basement complex. Deformation of the sedimentary rocks in the area has not been restricted to faulting. Localized folding had also occurred within the geosyncline forming entrapments for oil and gas accumulations.

Adjacent to the San Joaquin Valley, the Sierra Nevada and Coast Ranges are geologically young mountain ranges that possess active and potentially active fault zones. Major active faults and fault zones occur at some distance to the east, west, and south of the project site. The Sierra Nevada and Owens Valley Fault Zones bound the eastern edge of the Sierra Nevada block approximately 73 and 78 miles east of the site, respectively. Numerous active faults are present within the San Joaquin Valley, San Emigdio Mountains, and Tehachapi Mountains south of the site including the White Wolf, Pleito Thrust, Garlock, and San Andreas Faults. These faults are located approximately 14, 24, 33, and 36 miles from the site, respectively.

The White Wolf Fault (responsible for a 1952 earthquake that caused extensive damage in the Bakersfield area) is located in the tectonically active Tehachapi Mountains as the southerly terminus of the valley, approximately 14 miles south of the subject site.

Numerous active faults are present within the central Coast Ranges west of the site including the San Andreas Fault located approximately 36 miles southwest of the subject site. The fault is considered active and is of primary concern in evaluating seismic hazards throughout western Kern County. The 684-mile-long San Andreas Fault Zone is the principal element of the San Andreas Fault system, a network of faults with predominately dextral strike-slip displacement that collectively accommodates the majority of relative north-south motion between the North America and Pacific plates. The San

Andreas Fault zone is the most extensively studied fault in California, and perhaps the world. The San Andreas Fault Zone is considered to be the Holocene and historically active dextral strike-slip fault that extends along most of coastal California from its complex junction with the Mendocino Fault zone on the north, southwest to the northern Transverse Range and inland to the Salton Sea, where a well defined zone of seismicity transfers the slip to the Imperial fault along a right-releasing step.

Two major surface-rupturing earthquakes have occurred on the San Andreas Fault in historic time: the 1857 Forth Tejon and 1906 San Francisco earthquakes. Additional historic surface rupturing earthquakes include the unnamed 1812 earthquake along the Mojave section and the northern part of the San Bernardino Mountains section, and a large earthquake in the San Francisco Bay area that occurred in 1838 that was probably on the Peninsula section. Historic fault creep rates are as high as 32 millimeters per year for the 82-mile-long creeping section in central California with creep rates gradually tapering to zero at the northwestern and southeastern ends of the section.

A significant seismotectonic sources is the Great Valley Fault Zone (Coast Ranges-Central Valley boundary zone), located approximately 65 miles west of the site. The Great Valley Fault zone is the geomorphic boundary of the Coast Ranges and the Central Valley and is underlain by a 300-mile long seismically active fold and thrust belt that has been the source of recent earthquakes, such as the 1983 magnitude 6.5 Coalinga and the 1985 magnitude 6.1 Kettleman Hills earthquakes. Nearly the entire thrust system is concealed or "blind". The basal detachment of this thrust system dips at a shallow angle to the west. East-directed thrusting over ramps in the detachment and west-directed thrusting on backthrusts are responsible for the uplift along the eastern range front of the Coast Ranges. Based on earthquake focal mechanisms, movement on the thrust zone is generally perpendicular to the strike of the geomorphic boundary and trend of the San Andreas Fault system. Shortening along the geomorphic boundary is driven by a component of the Pacific-North American Plate motion that is normal to the plate boundary. The Great Valley Fault Zone is considered a dominant seismic feature with potential for affecting the subject site.

Tensional forces resulting in normal faults are reported to be related to crustal stress relief in the southeast portion of the San Joaquin Valley. Numerous relatively short, normal faults traverse this region. Creep activity is the prominent mode of slip on those faults in this region that are active. These movements have continued on an intermittent basis from the early Miocene to Recent time. This faulting is directly related to and controls the accumulation of oil in several oil fields within the easterly portion of the valley. Most authors agree that current creep movements can be ascribed to subsidence promoted by extensive withdrawal of petroleum, and in some cases, groundwater. Those faults considered to be active in the southern valley are the Kern Front, Premier, Pond, and New Hope Faults located approximately 8, 11, 20, and 17 miles northeast of the subject site, respectively.

The Kern Front, Premier and New Hope Faults, are actively creeping westerly-dipping normal faults in oil-producing areas. The Buena Vista Fault, also located within a nearby oil producing area, is indicated to be a north-dipping thrust fault. Recent aseismic movement along these pre-existing faults is considered to be related to oil field fluid withdrawal. In addition, numerous unnamed faults are mapped within the oil fields in the vicinity of the site. The majority of the mapped faults associated with the oil fields, do not extend through the Kern River Formation to the surface and have been mapped based on

extensive subsurface exploration associated with the oil industry. The Pond Fault is a relatively minor, actively creeping west-dipping to vertical normal fault which is considered to be due to differential subsidence caused by groundwater withdrawal.

The Sierra Nevada and Owens Valley Fault Zones bound the eastern edge of the Sierra Nevada block more than 70 miles east of the site.

As noted above, several dominant faults with seisomgenic structures are located in the vicinity of the subject site. Table I is a listing of active faults or seismogenic structures within 60 miles of the site, and a Fault Map is provided on Figure 7.

GEOLOGIC HAZARDS

Fault Rupture Hazard Zones in California

The Alquist-Priolo Geologic Hazards Zones Act went into affect in March, 1973. Since that time, the act has been amended 10 times (Hart, 1994). The purpose of the Act, as provided in DMG Special Publication 42 (SP 42), is to prohibit the location of most structures for human occupancy across the traces of active faults and to mitigate thereby the hazard of fault-rupture." The act was renamed the Alquist-Priolo Earthquake Fault Zoning Act in 1994, and at that time, the originally designated "Special Studies Zones" was renamed the "Earthquake Fault Zones."

The subject site is not located on a Fault Rupture Hazard Zones Map. In addition, the site is not within a Fault-Rupture Hazard Zone. The nearest zoned fault is a portion of an unnamed fault located more than 3.4 miles northeast of the subject site.

Seismic Hazard Zones in California

In 1990, the California State Legislature passed the Seismic Hazard Mapping Act to protect public safety from the effects of strong shaking, liquefaction, landslides, or other ground failure, and other hazards caused by earthquakes. The Act requires that the State Geologist delineate various seismic hazards zones on Seismic Hazards Zones Maps. Specifically, the maps identify areas where soil liquefaction and earthquake-induced landslides are most likely to occur. A site-specific geotechnical evaluation is required prior to permitting most urban developments within the mapped zones. The Act also requires sellers of real property within the zones to disclose this fact to potential buyers. The area of the subject site is not included on any of the maps released to date. The subject site is located on the Kern County Seismic Hazard Atlas, for the Lamont Quadrangle, dated November 1975. The site is not located within an identified seismic hazard zone. However, the site is located greater than 3.6 miles from an inferred fault trace trending northwest-southeast.

Historic Seismicity/Earthquake Epicenter Distribution

The Bakersfield area has historically experienced a low to moderate degree of seismicity. A listing of historic earthquakes with magnitudes greater than 4.0 within approximately 50 miles (80 kilometers) of the subject site was obtained from the comprehensive California Geological Survey computerized

earthquake catalog for the State of California, the Townley and Allen (1939) catalog and the U.S. Geological Survey Earthquake Data Base System. In addition, a listing was obtained for all historic earthquakes with magnitudes greater than 5.0 within approximately 100 miles of the site. The listings include the date, time, location, depth, magnitude, and intensity all recorded events within the search radius between 1800 and 2020. A review of the literature for pre-1900 earthquakes (Toppozada, 1991) does not reveal any significant recorded seismic events in the vicinity of the subject site prior to the period covered by the above listing.

The historic earthquake listings are included in Appendix D. A plot of epicenters associated with historic earthquakes in the region of the site with magnitudes greater than 5 is shown on Figure 8, Epicenter Map. The earthquake data indicates that 325 events with magnitudes greater than 4.0 occurred within 50 miles of the subject site between 1800 and 2020. Eleven of the listed events occurred within 10 miles of the site. The data indicates that 149 events exceeded magnitudes 5.0 within 100 miles of the subject site. The nearest listed event occurred approximately 0.7 miles east of the site in 1954 with a magnitude of 4.0. Forty of the listed earthquakes with magnitudes greater than 5.0 occurred within 50 miles of the site. Numerous earthquakes are listed with magnitudes between 5.0 and 6.0 beyond about 30 miles of the site. Eight events were recorded with magnitudes greater than 6.0 within 50 miles of the site. The largest magnitude found in the search radius was 7.9 occurring January 9, 1857.

The geologic literature indicates that groundshaking of VIII intensity (Modified Mercalli Scale) was felt in Bakersfield from the 1857 Fort Tejon Earthquake and the 1952 Arvin-Tehachapi Earthquake. These are the largest known earthquake events to have affected the Bakersfield area. The most recent earthquake significant to the site area was the seismic event which occurred on July 21, 1952. A significant number of the listed historic earthquakes occurred in 1952 and are considered related to the Arvin-Tehachapi earthquake of July 21, 1952. This magnitude 7.7 event affected all of Kern County as well as parts of Los Angeles and Santa Barbara Countries. The earthquake took place near Wheeler Ridge on the White Wolf Fault, located approximately 24 miles southeasterly of the subject site. Vertical displacements of as much as three feet occurred at the fault line. Destruction in the communities of Arvin and Tehachapi was extensive; the quake caused numerous landslides and damaged highways, bridges, and railroads. Damage to Bakersfield from the main shock was slight, however, on July 29 and August 5, 1952, aftershocks generated just east of Bakersfield produced a great deal of damage to older buildings. Estimated average value of the maximum bedrock accelerations from the 1952 events are about 0.14 gravity (g) at the subject site.

Geologic Subgrade

Information obtained from the geologic literature, as well as data from the above-described site exploration, indicate the general soil profile at the site consists predominately of medium dense to very dense silty sands, sandy silts, and relatively clean sands underlain at a shallow depth by very dense decomposed granite and granitic rock. Assuming that any loose surface soil and fill materials on the site are removed and recompacted as recommended in our Geotechnical Engineering Investigation, the geologic subgrade of the site can be conservatively approximated as "stiff soil". A Joyner-Boore Class

C subgrade classification is considered appropriate for the soil profile and corresponds with a National Earthquake Hazard Reduction Program (NEHRP) (BSSC, 1994) Site Class D. The site class definition from the 2016 California Building Code that is most consistent with the site conditions is Site Class D.

Soil Liquefaction

Soil liquefaction is a state of soil particles suspension caused by a complete loss of strength when the effective stress drops to zero. Liquefaction normally occurs in soils such as sand in which the strength is purely friction. However, liquefaction has occurred in soils other than clean sand. Liquefaction usually occurs under vibratory conditions such as those induced by seismic event.

To evaluate the liquefaction potential of the site, the following items were evaluated:

1) Groundwater depth;

2) Soil type;

3) Relative density;

4) Initial confining pressure;

5) Intensity and duration of groundshaking.

The soils encountered within a depth of 50 feet on the project site predominately consist of loose to dense silty sand, sandy silt, silty sand/sand, silty sand/sandy silt, and sandy silty clay. Groundwater was encountered within the soil borings at a depth of 29½ feet below site grade during subsurface exploration. Available groundwater data, as well as our experience in the area, indicates that groundwater depth has been as shallow as 16½ feet within the project site vicinity.

The potential for soil liquefaction during a seismic event was evaluated using the LIQUEFYPRO computer program (version 5.8h) developed by CivilTech Software. For the analysis, a maximum earthquake magnitude of 6.41 was used. A peak horizontal ground surface acceleration of 0.491g was considered conservative and appropriate for the liquefaction analysis. A groundwater depth of 16½ feet was used for the analysis. The computer analysis indicates that soils above a depth of 16½ feet are non-liquefiable due to the absence of groundwater. The analysis indicates that the total and differential seismic induced settlement is not anticipated to exceed 1½ inches and 1 inch, respectively. The estimated differential settlement is over a horizontal distance of 100 feet. Therefore, it is not anticipated that liquefaction will have a significant affect on the proposed development. Accordingly, the liquefaction potential at the site is considered low and measures to mitigate liquefaction potential should be included in the design of the project

Due to the relatively low levels of expected groundshaking at the site, the depth to groundwater, the density of the native soil deposits (90 pcf to 129 pcf), and the recommendation that all loose fill within proposed building areas be excavated and recompacted, liquefaction is not considered a viable geologic hazard at the subject site.

Seismic Settlement

One of the most common phenomena during seismic shaking accompanying any earthquake is the induced settlement of loose unconsolidated soils. Based on the nature of the subsurface materials, the plan to excavate and recompact the upper soils and any loose fill soils within the proposed building areas and the relatively low to moderate seismicity of the region, we would not expect seismic settlement to represent a significant geologic hazard to the site provided that the recommendations of our referenced Geotechnical Engineering Investigation are followed.

One of the most common phenomena during seismic shaking accompanying any earthquake is the induced settlement of loose unconsolidated soils. Based on the nature of the subsurface materials, and the relatively low to moderate seismicity of the region, we would not expect seismic settlement or lateral spread to represent a significant geologic hazard to the site.

The estimated seismic settlement was determined at the site using the settlement analysis method by Ishihara/Yoshimine (1990). The results of the settlement analysis are included as follows:

	Seismic Settlement (inches)				
Location	**Saturated Settlement**	**Unsaturated Settlement**	**Total Settlement**	**Range of Differential Settlement**	**Design for Differential Settlement**
B6	1.39	0.05	1.44	0.53 to 0.70	1 Inch in 100 Feet

The above settlement values were determined at specific boring locations. The Consolidated Settlement (under static load of specific structures) and Differential Settlement (per specified length in building area) are indicated in the Foundations section of this report.

The native soils within the project site are not conducive to hydrocollapse due to the relatively medium dense soil conditions, low void-ratio, and moderate to high penetration resistance measured. Any loose fill material at the site could be vulnerable to hydrocollapse. However, the proposed structures are planned to be supported on engineered fill. Therefore the structure will not be vulnerable to hydrocollapse. In addition, this hazard can be mitigated by following the design and construction recommendations of current and future Geotechnical Engineering Investigations (over-excavation and rework of any loose soils and/or uncertified fill materials).

A drainage basin is located within the adjacent developments within 20 feet of the proposed Health Facility building site. The structures planned for development will be located 150 feet away from a 15 foot deep basin. The potential for lateral spreading was evaluated using the "Revised Multilinear Regression Equations for Predication of Lateral Spread Displacement" by Youd, Hansen, Corbett and Bartlett (2002). Based on the distance of proposed structures from the basin, the site is not likely subject to lateral spreading hazards.

Subsidence Due to Fluid Withdrawal

Portions of the San Joaquin Valley have been subject to land subsidence due to fluid withdrawal (groundwater and petroleum). However, the area of the subject site is not known to be subject to significant subsidence hazards.

Expansive Soils

The surface and near-surface soils observed on the site surface consist of silty sands and sandy silts. The sandy silts were intermixed with traces of clay. These materials are considered to have a moderate expansion potential.

Inundation Hazards

A review of Federal Emergency Management Agency (FEMA) Flood Insurance Mapping for the area of the subject site (Community Panel Number 06029C2325E, dated September 26, 2008, indicates that the subject site is within "Zone X", "Areas determined to be outside the 0.2% annual chance floodplain."

A review of the Office of Emergency Services and Corps of Engineers Dam Inundation Mapping for the area of the subject site indicates that the subject site is outside the "Inundation Area" should a failure occur at the Isabella Lake Dam, located 36 miles northeast, and Lake Success Dam, located 45 miles north of the project site.

Tsunamis and Seiches

A tsunami is a series of ocean waves generated in the ocean by an impulsive disturbance. Due to the inland location of the subject site, tsunamis are not considered a threat to the site. Seiches are standing waves in a body of water such as a lake or reservoir. Because such a body of water is not located near the site, seiches are not anticipated to affect the subject site.

Slope Stability and Potential for Slope Failure

Slopes can be reconstructed by placement of Engineered Fill utilizing a keying and benching procedure as described below. Reconstructed slopes should be constructed at an inclination not exceeding 2:1 (horizontal to vertical). Krazan and Associates, Inc. should be retained to review all slope reconstruction plans and specifications prior to initiating the repair work.

General site clearing should include removal of vegetation, any loose and/or saturated materials. Excavations or depressions extending below subgrade levels should be cleaned to firm, undisturbed soil and backfilled with Engineered Fill, placed and recompacted in accordance with the recommendations stated herein.

Where fills greater than 8 feet are to be constructed on original ground that slopes at inclinations steeper than 6:1 (horizontal to vertical), benches should be cut into the existing slope as the filling operations proceed. Each bench should consist of a level terrace a minimum of 10 feet wide, with the rise to the

indicates that historic high groundwater within the project site and vicinity range from 16.5 to 296 feet below site grade. Groundwater information was obtained from 6 groundwater wells located within 1 mile from the subject site (Well Nos.: 29S28E35N001M, 30S28E02N001M, 30S28E03Q001M, 30S28E03D001M, 30S28E03G001M, and 30S28E03A001M). Past subsurface soil exploration performed by Krazan & Associates, Inc., in the vicinity of the site confirms this approximate groundwater depth.

It should be recognized that water table elevations may fluctuate with time, being dependent upon seasonal precipitation, irrigation, land use and climatic conditions, as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report.

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of our field and laboratory investigations, along with previous geotechnical experience in the project area, the following is a summary of our evaluations, conclusions, and recommendations.

Administrative Summary

In brief, the subject site and soil conditions, with the exception of the loose surface soils, fill material, existing development, and the expansive nature of the clayey soils, appear to be conducive to the development of the project. The surface soils have a loose consistency. These soils are disturbed, have low strength characteristics and are highly compressible when saturated. Accordingly, it is recommended that the surface soils be recompacted. This compaction effort should stabilize the surface soils and locate any unsuitable or pliant areas not found during our field investigation.

Approximately 1½ to 4 feet of fill material was encountered in the borings drilled within the proposed building area. The fill material predominately consisted of sandy silt with trace amounts of clay. The thickness and extent of fill material was determined based on limited test borings and visual observation. Thicker fill may be present at the site. Limited testing was performed on the fill soils during the time of our field and laboratory investigations. The limited testing indicates that the fill material had varying strength characteristics ranging from loosely placed to compacted. Therefore, it is recommended the fill material be completely removed so the native soils can be properly prepared. The fill material will be suitable for reuse as general Engineered Fill provided it is cleansed of excessive organics and debris. Clayey soils with an expansion index of 15 or greater should not be used as Engineered Fill within the upper 18 inches of slab-on-grade and exterior flatwork areas. The fill material should be moisture-conditioned to a minimum of 2 percent above optimum moisture content and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. Prior to fill placement, Krazan & Associates, Inc. should inspect the bottom of the excavation to verify no additional removal will be required.

In order to reduce the potential for differential settlement and provide uniform support for the planned structure, it is recommended that following stripping, fill removal operations, and demolition activities, the upper 12 inches of exposed subgrade within the proposed building pad areas be excavated, worked

next bench held to 4 feet or less. Where fills of comparable height will be constructed on ground that slopes at an inclination of 4:1 (horizontal to vertical), or steeper, a keyway should be provided in addition to the benches. Each keyway should consist of a level trench at least 10 feet wide and at least 2 feet deep, with side slopes not exceeding 1:1 (horizontal to vertical), cut into the existing slope. Where fills of comparable height will be constructed on ground that slopes at an inclination steeper than 2:1 (horizontal to vertical), geotextile fabric and retaining structures should be utilized in slope construction where subsequent specific building site investigations warrant.

Site grading near the crowns of the reconstructed slopes should be accomplished such that excessive sheet run-off is prevented.

The completed slopes should be seeded or otherwise vegetated to protect from future erosion. Well vegetated slopes at the recommended configuration should be reasonably protected from typical erosional effects. However, vegetated slopes may not be protected from unusual flow conditions, such as flood events or over-topping of the development's storm drainage system. If erosion control from unusual flow conditions is desired, more substantial erosion protection measures, such as grouted cobble slope facing or manufactured slope protection products should be considered.

Volcanic Hazards

The subject site is not within an area known to be affected by volcanic hazards (Miller, 1989, USGS Bulletin, 1847).

County Seismic Safety Element

Documentation and mapping included in the Health and Safety Element of the Kern County General Plan, dated March 2007, and the City of Bakersfield General Plan, dated December 2007, were reviewed. The seismic information contained within the Safety Elements is somewhat dated and or generalized and is superseded by more recent information and analyses described herein. The referenced documents generally indicate that the site area is subject to relatively low to moderate seismicity and related hazards.

FIELD AND LABORATORY INVESTIGATIONS

A subsurface soil investigation consisting of exploratory drilling was performed at the site in April 2020. Subsurface soil conditions were explored by drilling 6 borings to depths ranging from approximately 20 to 50 feet below existing site grade, using a truck-mounted drill rig. In addition, 5 bulk subgrade samples were obtained from the site for laboratory R-value testing. The approximate boring and bulk sample locations are shown on the site geologic map, Figure No. 2. During drilling operations, penetration tests were performed at regular intervals to evaluate the soil consistency and to obtain information regarding the engineering properties of the subsoils. Soil samples were retained for laboratory testing. The soils encountered were continuously examined and visually classified in accordance with the Unified Soil Classification System. A site geologic cross section based on the exploratory drilling data is provided on Figure No. 3.

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and engineering properties. The laboratory testing program was formulated with emphasis on the evaluation of natural moisture, density, gradation, shear strength, consolidation potential, expansion potential, atterberg limits, R-value, and moisture-density relationships of the materials encountered. In addition, chemical tests were performed to evaluate the soil-cement reactivity. Details of the laboratory test program and results of the laboratory tests are summarized in Appendix A. This information, along with the field observations, was used to prepare the final boring logs in Appendix A.

SOIL PROFILE AND SUBSURFACE CONDITIONS

Based on our findings, the subsurface conditions encountered appear typical of those found in the geologic region of the site. In general, the surface soils consisted of approximately 6 to 12 inches of very loose sandy silt with trace amounts of clay. These soils are disturbed, have low strength characteristics and are highly compressible when saturated.

Beneath the very loose surface soils, approximately 1½ to 4 feet of fill material was encountered. The fill material predominately consisted of sandy silt with trace amounts of clay. The thickness and extend of fill material was determined based on limited test borings and visual observation. Thicker fill may be present at the site. Limited testing was performed on the fill soils during the time of our field and laboratory investigations. The limited testing indicates the fill soils have varying strength characteristic ranging from loosely placed to compacted.

Below the fill material, approximately 4 to 8 feet of loose to medium dense sandy silt, silty sand/sandy silt, clayey sandy silt, or stiff to very stiff sandy silty clay were encountered. These soils contained varying amounts of clay. The clayey soils appear to have a low to moderate expansion potential. Field and laboratory tests suggest that these soils are moderately strong and slightly compressible. Penetration resistance ranged from 9 to 35 blows per foot. Dry densities ranged from 74 to 85 pcf. A representative soil sample consolidated approximately 3¼ percent under a 2 ksf load when saturated. A representative soil sample had an angle of internal friction of 33 degrees. A representative sample of the clayey soil had an expansion index of 40.

Below 8 to 10 feet, layers of predominately medium dense silty sand, sandy silt, clayey sandy silt, silty sand/sand, or firm to very stiff sandy silty clay were encountered. Field and laboratory tests suggest that these soils are moderately strong and slightly compressible. Penetration resistance ranged from 6 to 32 blows per foot. Dry densities ranged from 70 to 108 pcf. These soils had slightly stronger strength characteristics than the upper soils and extended to termination depth of our borings.

For additional information about the soils encountered, please refer to the logs of borings in Appendix A.

GROUNDWATER

Test boring locations were checked for the presence of groundwater during and immediately following the drilling operations. Free groundwater was encountered at a depth of 39½ feet. Review of the Department of Water Resources groundwater level readings from December 1946 to February 2019

until uniform and free from large clods, moisture-conditioned to a minimum of 2 percent above optimum moisture content, and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. In addition, it is recommended that proposed structural elements be supported by a minimum of 24 inches of Engineered Fill. Over-excavation should extend to a minimum of 5 feet beyond proposed footing lines. The excavation should be backfilled with Engineered Fill, compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. Prior to fill placement, Krazan & Associates, Inc. should inspect the bottom of the excavation to verify no additional removal will be required.

The upper soils within the site are predominately sandy silt with clay and sandy silty clay. These clayey soils have a low to moderate swell potential. The estimated swell pressures of the clayey soils may cause minor movement effecting slabs and possible stucco or similar brittle exterior finishes. To reduce potential soil movement, it is recommended the upper 18 inches of soil within slab-on-grade and exterior flatwork areas consist of non-expansive Engineered Fill. During construction, it is recommended that additional tests should be performed on the on-site soils to verify their physical and index properties. In addition, it is recommended slabs-on-grade and foundations be nominally reinforced to reduce cracking and vertical offsets.

Several structures are located within the project site vicinity. Associated with these developments are buried structures such as utility lines and landscape irrigation lines that may extend into the project site. Any buried structures, including utilities or loosely backfilled excavations, encountered during construction should be properly removed and the resulting excavations backfilled. It is suspected that demolition activities of the existing structures will disturb the upper soils. After demolition activities, it is recommended that these disturbed soils be removed and/or recompacted. Excavations, depressions, or soft and pliant areas extending below planned finished subgrade levels should be cleaned to firm, undisturbed soil and backfilled with Engineered Fill. In general, any septic tanks, debris pits, cesspools, or similar structures should be entirely removed. Existing concrete footings should be removed to an equivalent depth of at least 3 feet below proposed footing elevations or as recommended by the Soils Engineer. Any other buried structures should be removed in accordance with the recommendations of the Soils Engineer. Resulting excavations should be backfilled with Engineered Fill.

Sandy soil conditions were encountered at the site. These cohesionless soils have a tendency to cave in trench wall excavations. Shoring or sloping back trench sidewalls may be required within these sandy soils.

After completion of the recommended site preparation, the site should be suitable for shallow footing support. The proposed structure footings may be designed utilizing an allowable bearing pressure of 2,500 psf for dead-plus-live loads. Footings should have a minimum embedment of 18 inches.

Groundwater Influence on Structures/Construction

Based on our findings and historical records, it is not anticipated that groundwater will rise within the zone of structural influence or affect the construction of foundations and pavements for the project. However, if earthwork is performed during or soon after periods of precipitation, the subgrade soils may

become saturated, "pump," or not respond to densification techniques. Typical remedial measures include: discing and aerating the soil during dry weather; mixing the soil with dryer materials; removing and replacing the soil with an approved fill material; or mixing the soil with an approved lime or cement product. Our firm should be consulted prior to implementing remedial measures to observe the unstable subgrade conditions and provide appropriate recommendations.

Site Preparation

General site clearing should include removal of vegetation; debris; existing utilities; structures including foundations; basement walls and floors; existing stockpiled soil; trees and associated root systems; rubble; rubbish; and any loose and/or saturated materials. Site stripping should extend to a minimum depth of 2 to 4 inches, or until all organics in excess of 3 percent by volume are removed. Deeper stripping may be required in localized areas. These materials will not be suitable for use as Engineered Fill. However, stripped topsoil may be stockpiled and reused in landscape or non-structural areas.

Approximately 1½ to 4 feet of fill material was encountered in the borings drilled within the proposed building area. The fill material predominately consisted of sandy silt with trace amounts of clay. The thickness and extent of fill material was determined based on limited test borings and visual observation. Thicker fill may be present at the site. Limited testing was performed on the fill soils during the time of our field and laboratory investigations. The limited testing indicates that the fill material had varying strength characteristics ranging from loosely placed to compacted. Therefore, it is recommended the fill material be completely removed so the native soils can be properly prepared. The fill material will be suitable for reuse as general Engineered Fill provided it is cleansed of excessive organics and debris. Clayey soils with an expansion index of 15 or greater should not be used as Engineered Fill within the upper 18 inches of slab-on-grade and exterior flatwork areas. The fill material should be moisture-conditioned to a minimum of 2 percent above optimum moisture content and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. Prior to fill placement, Krazan & Associates, Inc. should inspect the bottom of the excavation to verify no additional removal will be required.

In order to reduce the potential for differential settlement and provide uniform support for the planned structure, it is recommended that following stripping, fill removal operations, and demolition activities, the upper 12 inches of exposed subgrade within the proposed building pad areas be excavated, worked until uniform and free from large clods, moisture-conditioned to a minimum of 2 percent above optimum moisture content, and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. In addition, it is recommended that proposed structural elements be supported by a minimum of 24 inches of Engineered Fill. Over-excavation should extend to a minimum of 5 feet beyond proposed footing lines. The excavation should be backfilled with Engineered Fill, compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. Prior to fill placement, Krazan & Associates, Inc. should inspect the bottom of the excavation to verify no additional removal will be required.

The upper soils within the site are predominately sandy silt with clay and sandy silty clay. These clayey soils have a low to moderate swell potential. The estimated swell pressures of the clayey soils may cause minor movement effecting slabs and possible stucco or similar brittle exterior finishes. To reduce potential soil movement, it is recommended the upper 18 inches of soil within slab-on-grade and exterior flatwork areas consist of non-expansive Engineered Fill. During construction, it is recommended that additional tests should be performed on the on-site soils to verify their physical and index properties. In addition, it is recommended slabs-on-grade and foundations be nominally reinforced to reduce cracking and vertical offsets.

Several structures are located within the project site vicinity. Associated with these developments are buried structures such as utility lines and landscape irrigation lines that may extend into the project site. Any buried structures, including utilities or loosely backfilled excavations, encountered during construction should be properly removed and the resulting excavations backfilled. It is suspected that demolition activities of the existing structures will disturb the upper soils. After demolition activities, it is recommended that these disturbed soils be removed and/or recompacted. Excavations, depressions, or soft and pliant areas extending below planned finished subgrade levels should be cleaned to firm, undisturbed soil and backfilled with Engineered Fill. In general, any septic tanks, debris pits, cesspools, or similar structures should be entirely removed. Existing concrete footings should be removed to an equivalent depth of at least 3 feet below proposed footing elevations or as recommended by the Soils Engineer. Any other buried structures should be removed in accordance with the recommendations of the Soils Engineer. The resulting excavations should be backfilled with Engineered Fill.

It is recommended that the upper 18 inches of soil within proposed slab-on-grade and exterior flatwork areas consist of non-expansive Engineered Fill. The intent is to support slab-on-grade and exterior flatwork areas with 18 inches of non-expansive fill. The fill placement serves two functions: 1) it provides a uniform amount of soil, which will more evenly distribute the soil pressures and 2) it reduces moisture content fluctuation in the clayey material beneath the building area. The non-expansive fill material should be a well-graded silty sand or sandy silt soil. A clean sand or very sandy soil is not acceptable for this purpose. A sandy soil will allow the surface water to drain into the expansive clayey soil below, which may result in soil swelling. Imported Fill should be approved by the Soils Engineer prior to placement. The fill should be placed as specified as Engineered Fill.

Following stripping, fill removal operations, and demolition activities, the exposed subgrade in exterior flatwork areas should be excavated/scarified to a depth of at least 12 inches, worked until uniform and free from large clods, moisture-conditioned to a minimum of 2 percent above optimum moisture content, and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. Limits of recompaction should extend 2 feet beyond edges of exterior concrete flatwork. This compaction effort should stabilize the surface soils and locate any unsuitable or pliant areas not found during our field investigation.

It is recommended that any uncertified fill material encountered within pavement areas be removed and/or recompacted. The fill materials should be moisture-conditioned to at least 2 percent above optimum moisture and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. As an alternative, the Owner may elect not to recompact the existing fill within

paved areas. However, the Owner should be aware that the paved areas may settle which may require annual maintenance. At a minimum, it is recommended that the upper 12 inches of subgrade soil be moisture-conditioned as necessary and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

Grade the site to prevent water/run-off flow over the face of cut and fill slopes. To accomplish this, use asphalt berms, brow ditches, or other measures to intercept and slowly redirect flow. Plant all disturbed areas with erosion-resistant vegetation suited to the area. As an alternative, jute netting or geotextile erosion control mats may be considered for control of erosion. Slopes should be inspected periodically for erosion and repaired immediately if detected. Brow ditches and drainage terraces should be cleaned before the start of each rainy season and, if necessary, after each rainstorm.

The upper soils, during wet winter months, become very moist due to the absorptive characteristics of the soil. Earthwork operations performed during winter months may encounter very moist unstable soils, which may require removal to grade a stable building foundation. Project site winterization consisting of placement of aggregate base and protecting exposed soils during the construction phase should be performed.

A representative of our firm should be present during all site clearing and grading operations to test and observe earthwork construction. This testing and observation is an integral part of our service as acceptance of earthwork construction is dependent upon compaction of the material and the stability of the material. The Soils Engineer may reject any material that does not meet compaction and stability requirements. Further recommendations of this report are predicated upon the assumption that earthwork construction will conform to recommendations set forth in this section and the Engineered Fill section.

Engineered Fill

The on-site, upper native soils and fill material are predominately sandy silt, clayey sandy silt, silty sand/sandy silt, and sandy silty clay. Clayey soils with an expansion index of 15 or greater will not be suitable for reuse as non-expansive Engineered Fill. However, these clayey soils will be suitable for reuse as general Engineered Fill provided they are cleansed of excessive organics, debris, fragments greater than 4 inches in maximum dimension, and moisture-conditioned to a minimum of 2 percent above optimum moisture content. Soils with an expansion index of 15 or greater should not be used as Engineered Fill within the upper 18 inches of slab-on-grade and exterior flatwork areas.

The preferred materials specified for Engineered Fill are suitable for most applications with the exception of exposure to erosion. Project site winterization and protection of exposed soils during the construction phase should be the sole responsibility of the Contractor, since he has complete control of the project site at that time.

Imported Fill material should be predominately non-expansive granular material with a plasticity index less than 10 and an expansion index less than 15. Imported Fill should be free from rocks and clods greater than 4 inches in diameter. All Imported Fill material should be submitted to the Soils Engineer for approval at least 48 hours prior to delivery at the site.

Fill soils should be placed in lifts approximately 6 inches thick, moisture-conditioned to a minimum of 2 percent above optimum moisture content, and compacted to achieve at least 90 percent maximum density as based on ASTM Test Method D1557. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

Drainage and Landscaping

The ground surface should slope away from building pad and pavement areas toward appropriate drop inlets or other surface drainage devices. In accordance with Section 1804 of the 2019 California Building Code, it is recommended that the ground surface adjacent to foundations be sloped a minimum of 5 percent for a minimum distance of 10 feet away from structures, or to an approved alternative means of drainage conveyance. Swales used for conveyance of drainage and located within 10 feet of foundations should be sloped a minimum of 2 percent. Impervious surfaces, such as pavement and exterior concrete flatwork, within 10 feet of building foundations should be sloped a minimum of 1 percent away from the structure. Drainage gradients should be maintained to carry all surface water to collection facilities and off-site. These grades should be maintained for the life of the project.

Grade the site to prevent water/run-off flow over the face of cut and fill slopes. To accomplish this, use asphalt berms, brow ditches, or other measures to intercept and slowly redirect flow. Plant all disturbed areas with erosion-resistant vegetation suited to the area. As an alternative, jute netting or geotextile erosion control mats may be considered for control of erosion. Slopes should be inspected periodically for erosion and repaired immediately if detected. Where only 1 drainage terrace is necessary, it should be located at mid-height of the slope. Brow ditches and drainage terraces should be cleaned before the start of each rainy season and, if necessary, after each rainstorm.

Utility Trench Backfill

Utility trenches should be excavated according to accepted engineering practices following OSHA (Occupational Safety and Health Administration) standards by a Contractor experienced in such work. The responsibility for the safety of open trenches should be borne by the Contractor. Traffic and vibration adjacent to trench walls should be minimized; cyclic wetting and drying of excavation side slopes should be avoided. Depending upon the location and depth of some utility trenches, groundwater flow into open excavations could be experienced; especially during or following periods of precipitation.

Sandy soil conditions were encountered at the site. These cohesionless soils have a tendency to cave in trench wall excavations. Shoring or sloping back trench sidewalls may be required within these sandy soils.

Utility trench backfill placed in or adjacent to buildings and exterior slabs should be compacted to at least 90 percent of maximum density based on ASTM Test Method D1557. Utility trench backfill placed in pavement areas should be compacted to at least 90 percent of the maximum density based on ASTM Test Method D1557. Pipe bedding should be in accordance with pipe manufacturer's recommendations.

The Contractor is responsible for removing all water-sensitive soils from the trench regardless of the backfill location and compaction requirements. The Contractor should use appropriate equipment and methods to avoid damage to the utilities and/or structures during fill placement and compaction.

Foundations

After completion of the recommended site preparation, the site should be suitable for shallow footing support. The proposed structure may be supported on a shallow foundation system bearing on a minimum of 24 inches of Engineered Fill. Spread and continuous footings supported by a minimum of 24 inches of Engineered Fill can be designed for the following maximum allowable soil bearing pressures:

Load	Allowable Loading
Dead Load Only	1,875 psf
Dead-Plus-Live Load	2,500 psf
Total Load, including wind or seismic loads	3,325 psf

The bearing capacity for dead-plus-live load includes a factor of safety of 3. The footings should have a minimum depth of 18 inches below pad subgrade (soil grade) or adjacent exterior grade, whichever is lower. Footings should have a minimum width of 12 inches, regardless of load. Ultimate design of foundations and reinforcement should be performed by the project Structural Engineer.

The footing excavations should not be allowed to dry out any time prior to pouring concrete. It is recommended that footings be reinforced by at least one No. 4 reinforcing bar in both top and bottom.

The total movement associated with static loads is not expected to exceed ¾ inch. Differential settlement associated with static loads should be less than ⅜ inch. Most of the settlement is expected to occur during construction as the loads are applied. However, additional post-construction movement may occur if the foundation soils are flooded or saturated. The total seismic-induced settlement is not expected to exceed 1½ inches. Differential settlement caused by a seismic event should be less than 1 inch over a horizontal distance of 100 feet.

Resistance to lateral footing displacement can be computed using an allowable friction factor of 0.35 acting between the base of foundations and the supporting subgrade. Lateral resistance for footings can alternatively be developed using an allowable equivalent fluid passive pressure of 300 pounds per cubic foot acting against the appropriate vertical footing faces. The frictional and passive resistance of the soil may be combined without reduction in determining the total lateral resistance. A ⅓ increase in the above value may be used for short duration, wind, or seismic loads.

Foundations - Drilled Caissons

The proposed light poles can be supported on caissons using an allowable sidewall adhesion of 350 psf. This value is for dead-plus-live loads and includes a factor of safety of 3. This value may be increased ⅓ for short duration loads, such as wind or seismic. Uplift loads can be resisted by caissons using an allowable sidewall adhesion of 200 psf of the surface area and the weight of the pier. The upper 2 feet should be neglected from friction calculations. The caissons should have a minimum embedment depth of 8 feet. The total settlement of the light pole is not expected to exceed one inch. Differential settlement should be less than one-half inch. Most of the settlement is expected to occur during construction as the loads are applied.

Sandy soil conditions were encountered at the site. Due to the sandy soil conditions, casing of the caissons may be required.

Lateral Loading Criteria - Caissons

Lateral resistance of the poles may be calculated utilizing the CBC flagpole formula for nonconstrained poles or constrained poles. In using the flagpole formula, an allowable lateral bearing capacity of 300 psf/ft may be used. This value is based upon the assumption that the isolated poles are not adversely affected by a 0.5 inch motion at the ground surface due to short term lateral loads and, therefore, no additional increased is allowed except for a ⅓ increase when using the alternate load combinations that include wind or seismic loads. The upper 2 feet should be neglected from friction calculations.

Excavation Stability

Temporary excavations planned for the construction of the building and other associated structures may be excavated, according to the accepted engineering practices following Occupational Safety and Health Administration (OSHA) standards by a Contractor experienced in such work. Open, unbraced excavations in undisturbed soils should be made according to the table below.

Recommended Excavation Slopes	
Depth of Excavation (ft)	**Slope (Horizontal:Vertical)**
	Temporary
0-5	1:1
5-10	1½:1
10-15	1¾:1
15+	2:1

If, due to space limitation, excavation near existing structures or roads is performed in a vertical position, braced shorings or shields may be used for supporting vertical excavations. Therefore, in order to comply with the local and state safety regulations, a properly designed and installed shoring system would be required to accomplish planned excavation and installation. A specialty Shoring

Contractor should be responsible for the design and installation of such a shoring system during construction. The lateral pressures provided below may be used in the design of a braced-type shoring system.

Recommended Lateral Earth Pressure for Braced Shoring	
Depth of Excavation Below Ground Surface (feet)	**Lateral Soil Pressure (psf)**
0	40 H
0.25 H	40 H
H	40 H
Where H is the total depth of the excavation in feet.	

The foregoing does not include excess hydrostatic pressure or surcharge loading. Fifty percent of any surcharge load, such as construction equipment weight, should be added to the lateral load given above.

Since the Contractor has the ultimate responsibility for excavation stability, he may design a different shoring system for the excavation.

The excavation/shoring recommendations provided herein are based on soil characteristics derived from limited test borings within the site. Variations in soil conditions will likely be encountered during the excavations. Krazan & Associates, Inc. should be afforded the opportunity to provide field review to evaluate the actual conditions and account for field condition variations not otherwise anticipated in the preparation of this recommendation.

Floor Slabs and Exterior Flatwork

In areas that will utilize moisture-sensitive floor coverings, concrete slab-on-grade floors should be underlain by a water vapor retarder. The water vapor retarder should be installed in accordance with accepted engineering practice. The water vapor retarder should consist of a vapor retarder sheeting underlain by a minimum of 3 inches of compacted, clean, gravel of ¾-inch maximum size. To aide in concrete curing an optional 2 to 4 inches of granular fill may be placed on top of the vapor retarder. The granular fill should consist of damp clean sand with at least 10 to 30 percent of the sand passing the 100 sieve. The sand should be free of clay, silt, or organic material. Rock dust which is manufactured sand from rock crushing operations is typically suitable for the granular fill. This granular fill material should be compacted.

The floor slab should be reinforced at a minimum with No. 3 reinforcement bars at 18 inches on-center each way within the middle one-third. Thicker floor slabs with increased concrete strength and reinforcement should be designed wherever large vehicular loads, heavy concentrated loads, heavy equipment, or machinery is anticipated.

The exterior floors should be poured separately in order to act independently of the walls and foundation system. All fills required to bring the building pads to grade should be Engineered Fills.

Moisture within the structure may be derived from water vapors, which were transformed from the moisture within the soils. This moisture vapor can travel through the vapor membrane and penetrate the slab-on-grade. This moisture vapor penetration can affect floor coverings and produce mold and mildew in the structure. To reduce moisture vapor intrusion, it is recommended that a vapor retarder be installed. It is recommended that the utility trenches within the structure be compacted, as specified in our report, to reduce the transmission of moisture through the utility trench backfill. Special attention to the immediate drainage and irrigation around the building is recommended. Positive drainage should be established away from the structure and should be maintained throughout the life of the structure. Ponding of water should not be allowed adjacent to the structure. Over-irrigation within landscaped areas adjacent to the structure should not be performed. In addition, ventilation of the structure (i.e. ventilation fans) is recommended to reduce the accumulation of interior moisture.

Lateral Earth Pressures and Retaining Walls

Walls retaining horizontal backfill and capable of deflecting a minimum of 0.1 percent of its height at the top may be designed using an equivalent fluid active pressure of 40 pounds per square foot per foot of depth. Walls that are incapable of this deflection or walls that are fully constrained against deflection may be designed for an equivalent fluid at-rest pressure of 60 pounds per square foot per foot per depth. Expansive soils should not be used for backfill against walls. The wedge of non-expansive backfill material should extend from the bottom of each retaining wall outward and upward at a slope of 2:1 (horizontal to vertical) or flatter. The stated lateral earth pressures do not include the effects of hydrostatic water pressures generated by infiltrating surface water that may accumulate behind the retaining walls; or loads imposed by construction equipment, foundations, or roadways.

Retaining and/or below grade walls should be drained with either perforated pipe encased in free-draining gravel or a prefabricated drainage system. The gravel zone should have a minimum width of 12 inches wide and should extend upward to within 12 inches of the top of the wall. The upper 12 inches of backfill should consist of native soils, concrete, asphaltic concrete or other suitable backfill to minimize surface drainage into the wall drain system. The aggregate should conform to Class 2 permeable materials graded in accordance with the CalTrans Standard Specifications (2018). Prefabricated drainage systems, such as Miradrain®, Enkadrain®, or an equivalent substitute, are acceptable alternatives in lieu of gravel provided they are installed in accordance with the manufacturer's recommendations. If a prefabricated drainage system is proposed, our firm should review the system for final acceptance prior to installation.

Drainage pipes should be placed with perforations down and should discharge in a non-erosive manner away from foundations and other improvements. The pipes should be placed no higher than 6 inches above the heel of the wall in the center line of the drainage blanket and should have a minimum diameter of 4 inches. Collector pipes may be either slotted or perforated. Slots should be no wider than ⅛ inch in diameter, while perforations should be no more than ¼ inch in diameter. If retaining walls are less than 6 feet in height, the perforated pipe may be omitted in lieu of weep holes on 4 feet maximum spacing. The weep holes should consist of 4-inch diameter holes (concrete walls) or unmortared head

joints (masonry walls) and not be higher than 18 inches above the lowest adjacent grade. Two 8-inch square overlapping patches of geotextile fabric (conforming to the CalTrans Standard Specifications for "edge drains") should be affixed to the rear wall opening of each weep hole to retard soil piping.

During grading and backfilling operations adjacent to any walls, heavy equipment should not be allowed to operate within a lateral distance of 5 feet from the wall or within a lateral distance equal to the wall height, whichever is greater, to avoid developing excessive lateral pressures. Within this zone, only hand operated equipment ("whackers," vibratory plates, or pneumatic compactors) should be used to compact the backfill soils.

R-Value Test Results and Pavement Design

Five subgrade soil samples were obtained from the project site for R-value testing at the locations shown on the attached site plan. The samples were tested in accordance with the State of California Materials Manual Test Designation 301. Results of the tests are as follows:

Sample	Depth	Description	R-Value at Equilibrium
1	12-24"	Sandy Silt (ML)	27
2	12-24"	Silty Sand/Sandy Silt (SM/ML)	34
3	12-24"	Sandy Silt (ML)	21
4	12-24"	Sandy Silt (ML)	25
5	12-24"	Silty Sand/Sandy Silt (SM/ML)	38

The test results are moderate and indicate fair to moderate subgrade support characteristics under dynamic traffic loads. The following table shows the recommended pavement sections for various traffic indices based on an R-value of 38.

Traffic Index	Asphaltic Concrete	Class II Aggregate Base*	Compacted Subgrade**
4.0	2.0"	4.0"	12.0"
4.5	2.5"	4.0"	12.0"
5.0	2.5"	5.0"	12.0"
5.5	3.0"	5.0"	12.0"
6.0	3.0"	6.5"	12.0"
6.5	3.5"	6.5"	12.0"
7.0	4.0"	7.5"	12.0"
7.5	4.0"	8.5"	12.0"

**** 95% compaction based on ASTM Test Method D1557 or CAL 216***
***** 90% compaction based on ASTM Test Method D1557 or CAL 216***

The following table shows the recommended pavement sections for various traffic indices based on an R-value of 21.

Traffic Index	Asphaltic Concrete	Class II Aggregate Base*	Class III Aggregate Subbase*	Compacted Subgrade**
4.0"	2.0"	6.0"	--	12.0"
4.0"	2.0"	4.5"	2.0"	12.0"
4.5"	2.5"	6.5"	--	12.0"
4.5"	2.5"	4.0"	3.0"	12.0"
5.0"	2.5"	8.0"	--	12.0"
5.0"	2.5"	5.0"	3.5"	12.0"
5.5"	3.0"	8.0"	--	12.0"
5.5"	3.0"	5.0"	3.5"	12.0"
6.0"	3.0"	10.0"	--	12.0"
6.0"	3.0"	6.5"	4.0"	12.0"
6.5"	3.5"	10.5"	--	12.0"
6.5"	3.5"	6.0"	5.0"	12.0"
7.0"	4.0"	11.5"	--	12.0"
7.0"	4.0"	6.5"	5.5"	12.0"
7.5"	4.0"	13.0"	--	12.0"
7.5"	4.0"	7.5"	6.0"	12.0"

**** 95% compaction based on ASTM Test Method D1557 or CAL 216***
***** 90% compaction based on ASTM Test Method D1557 or CAL 216***

If traffic indices are not available, an estimated (typical value) index of 4.5 may be used for light automobile traffic and an index of 7.0 may be used for light truck traffic.

The following recommendations are for light-duty and heavy-duty Portland Cement Concrete pavement sections.

PORTLAND CEMENT PAVEMENT
LIGHT DUTY

Traffic Index	Portland Cement Concrete***	Class II Aggregate Base*	Compacted Subgrade**
4.5	5.5"	4.0"	12.0"

HEAVY DUTY

Traffic Index	Portland Cement Concrete***	Class II Aggregate Base*	Compacted Subgrade**
7.0	6.5"	4.0"	12.0"

**** 95% compaction based on ASTM Test Method D1557 or CAL 216***
***** 90% compaction based on ASTM Test Method D1557 or CAL 216***
******Minimum compressive strength of 3000 psi***

It is recommended that any uncertified fill material encountered within pavement areas be removed and/or recompacted. The fill materials should be moisture-conditioned to at least 2 percent above optimum moisture and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. As an alternative, the Owner may elect not to recompact the existing fill within paved areas. However, the Owner should be aware that the paved areas may settle which may require annual maintenance. At a minimum, it is recommended that the upper 12 inches of subgrade soil be moisture-conditioned as necessary and recompacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

Seismic Parameters – 2019 California Building Code

The Site Class per Section 1613A of the 2019 California Building Code (2019 CBC) and ASCE 7-16, Chapter 20 is based upon the site soil conditions. It is our opinion that a Site Class D is most consistent with the subject site soil conditions. For seismic design of the structures based on the seismic provisions of the 2019 CBC, we recommend the following parameters:

Seismic Item	Value	CBC Reference
Site Class	D	Section 1613A.2.2
Site Coefficient F_a	1.117	Table 1613A.2.3 (1)
S_s	0.957	Section 1613A.2.1
S_{MS}	1.069	Section 1613A.2.3
S_{DS}	0.713	Section 1613A.2.4
Site Coefficient F_v	1.956	Table 1613A.2.3 (2)
S_1	0.344	Section 1613A.2.1
S_{M1}	0.673	Section 1613A.2.3
S_{D1}	0.449	Section 1613A.2.4
T_S	0.629	Section 1613A.2

The project's Structural Engineer should confirm that Exception 2 of Section 11.4.8 is applicable to the planned development.

Soil Cement Reactivity

Excessive sulfate in either the soil or native water may result in an adverse reaction between the cement in concrete (or stucco) and the soil. HUD/FHA and CBC have developed criteria for evaluation of sulfate levels and how they relate to cement reactivity with soil and/or water.

Soil samples were obtained from the site and tested in accordance with State of California Materials Manual Test Designation 417. The sulfate concentrations detected from these soil samples were less than 150 ppm (101 ppm) and are below the maximum allowable values established by HUD/FHA and CBC. However, it is recommended a Type II cement be used to compensate for sulfate reactivity with the cement.

Compacted Material Acceptance

Compaction specifications are not the only criteria for acceptance of the site grading or other such activities. However, the compaction test is the most universally recognized test method for assessing the performance of the Grading Contractor. The numerical test results from the compaction test cannot be used to predict the engineering performance of the compacted material. Therefore, the acceptance of compacted materials will also be dependent on the stability of that material. The Soils Engineer has the option of rejecting any compacted material regardless of the degree of compaction if that material is considered to be unstable or if future instability is suspected. A specific example of rejection of fill material passing the required percent compaction is a fill which has been compacted with an in situ moisture content significantly less than optimum moisture. This type of dry fill (brittle fill) is susceptible to future settlement if it becomes saturated or flooded.

Testing and Inspection

A representative of Krazan & Associates, Inc., should be present at the site during the earthwork activities to confirm that actual subsurface conditions are consistent with the exploratory fieldwork. This activity is an integral part of our service, as acceptance of earthwork construction is dependent upon compaction testing and stability of the material. This representative can also verify that the intent of these recommendations is incorporated into the project design and construction. Krazan & Associates, Inc., will not be responsible for grades or staking, since this is the responsibility of the Prime Contractor.

LIMITATIONS

Soils Engineering is one of the newest divisions of Civil Engineering. This branch of Civil Engineering is constantly improving as new technologies and understanding of earth sciences advance. Although your site was analyzed using the most appropriate and most current techniques and methods, undoubtedly there will be substantial future improvements in this branch of engineering. In addition to advancements in the field of Soils Engineering, physical changes in the site, either due to excavation or fill placement, new agency regulations, or possible changes in the proposed structure after the soils report is completed may require the soils report to be professionally reviewed. In light of this, the Owner should be aware that there is a practical limit to the usefulness of this report without critical review. Although the time limit for this review is strictly arbitrary, it is suggested that 2 years be considered a reasonable time for the usefulness of this report.

Foundation and earthwork construction is characterized by the presence of a calculated risk that soil and groundwater conditions have been fully revealed by the original foundation investigation. This risk is derived from the practical necessity of basing interpretations and design conclusions on limited sampling of the earth. The recommendations made in this report are based on the assumption that soil conditions do not vary significantly from those disclosed during our field investigation. If any variations or undesirable conditions are encountered during construction, the Soils Engineer should be notified so that supplemental recommendations may be made.

The conclusions of this report are based on the information provided regarding the proposed construction. If the proposed construction is relocated or redesigned, the conclusions in this report may not be valid. The Soils Engineer should be notified of any changes so the recommendations may be reviewed and re-evaluated.

This report is a Geotechnical Engineering Investigation with the purpose of evaluating the soil conditions in terms of foundation design. The scope of our services did not include any Environmental Site Assessment for the presence or absence of hazardous and/or toxic materials in the soil, groundwater, or atmosphere; or the presence of wetlands. Any statements, or absence of statements, in this report or on any boring log regarding odors, unusual or suspicious items, or conditions observed, are strictly for descriptive purposes and are not intended to convey engineering judgment regarding potential hazardous and/or toxic assessment.

The geotechnical engineering information presented herein is based upon professional interpretation utilizing standard engineering practices and a degree of conservatism deemed proper for this project. It is not warranted that such information and interpretation cannot be superseded by future geotechnical engineering developments. We emphasize that this report is valid for the project outlined above and should not be used for any other sites.

If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (661) 837-9200.

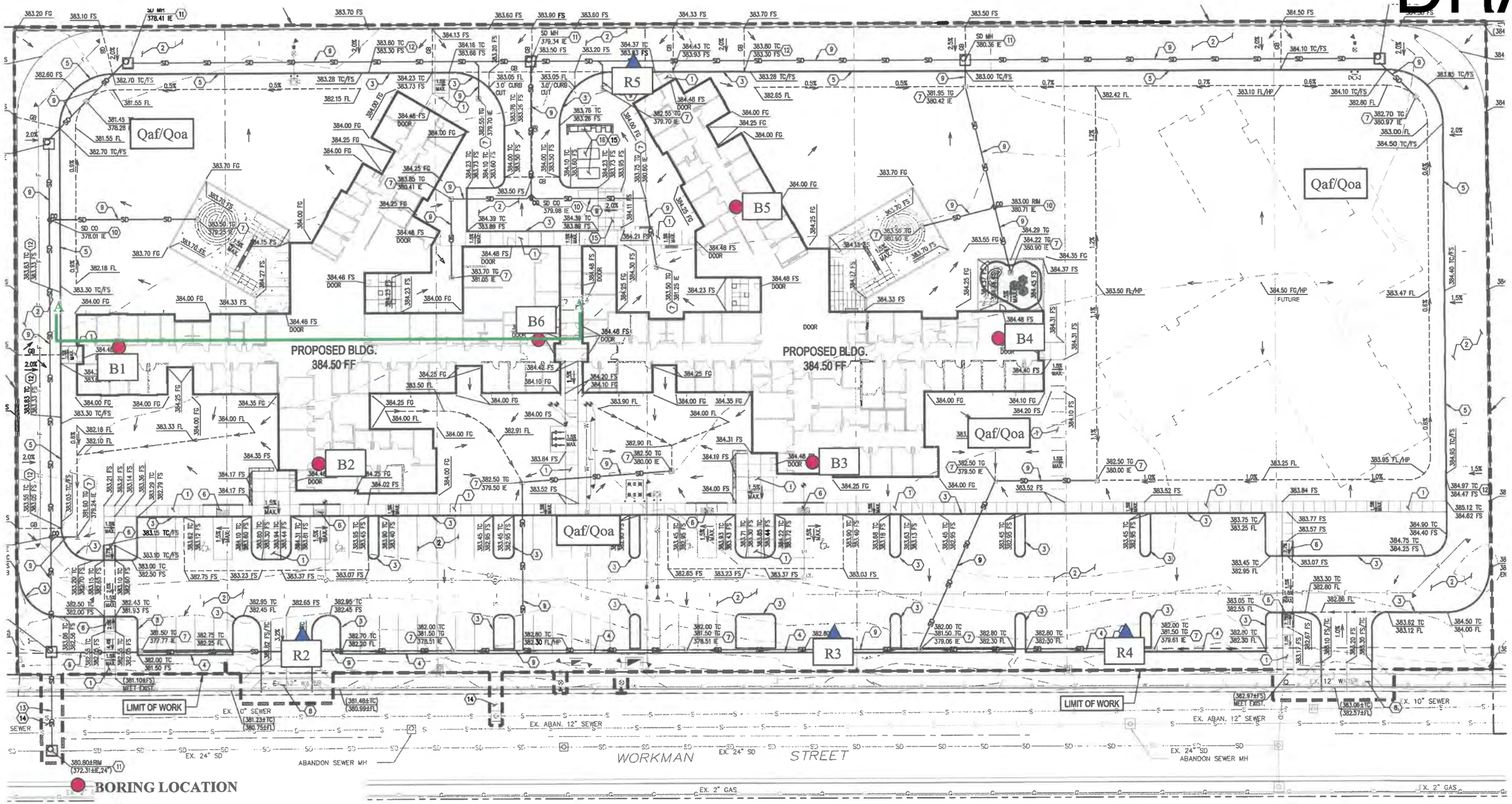
Respectfully submitted,
KRAZAN & ASSOCIATES, INC.

Stephen J. Nelson
Certified Engineering Geologist
CEG No. 2146

David R. Jarosz, II
Managing Engineer
RGE No. 2698/RCE No. 60185

SJN/DRJ:ht

DRAFT



BORING LOCATION

R-VALUE LOCATION

A A' **CROSS-SECTION LOCATION**

Qaf/Qoa **QUATERNARY FILLS UNDERLAIN BY OLDER ALLUVIUM (Covers Entire Area Shown on Site Plan)**

0 50'

N E S W

SITE GEOLOGIC MAP	**Scale:** 1 in = 50 ft	**Date:** June 2020	Krazan GEOTECHNICAL ENGINEERING
Psychiatric Health Facility **Workman Street and Zephyr Lane** **Bakersfield, Kern County, California**	**Drawn by:** HT	**Approved by:** DJ	
	Project No. 022-20048	**Figure No.** 2	

APPENDIX A

FIELD AND LABORATORY INVESTIGATIONS

Field Investigation

The field investigation consisted of a surface reconnaissance and a subsurface exploratory program. Six 4½-inch to 6½-inch exploratory borings were advanced. The boring locations are shown on the site plan.

The soils encountered were logged in the field during the exploration and with supplementary laboratory test data are described in accordance with the Unified Soil Classification System.

Modified standard penetration tests and standard penetration tests were performed at selected depths. These tests represent the resistance to driving a 2½-inch and 1½-inch diameter split barrel sampler, respectively. The driving energy was provided by a hammer weighing 140 pounds falling 30 inches. Relatively undisturbed soil samples were obtained while performing this test. Bag samples of the disturbed soil were obtained from the auger cuttings. The modified standard penetration tests are identified in the sample type on the boring logs with a full shaded in block. The standard penetration tests are identified in the sample type on the boring logs with half of the block shaded. All samples were returned to our Clovis laboratory for evaluation.

Laboratory Investigation

The laboratory investigation was programmed to determine the physical and mechanical properties of the foundation soil underlying the site. Test results were used as criteria for determining the engineering suitability of the surface and subsurface materials encountered.

In-situ moisture content, dry density, consolidation, direct shear, and sieve analysis tests were completed for the undisturbed samples representative of the subsurface material. Atterberg limits, expansion index and R-value tests were completed for select bag samples obtained from the auger cuttings. These tests, supplemented by visual observation, comprised the basis for our evaluation of the site material.

The logs of the exploratory borings and laboratory determinations are presented in this Appendix.

UNIFIED SOIL CLASSIFICATION SYSTEM

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)			
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
		SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)			
SILTS AND CLAYS Liquid limit less than 50%		ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils

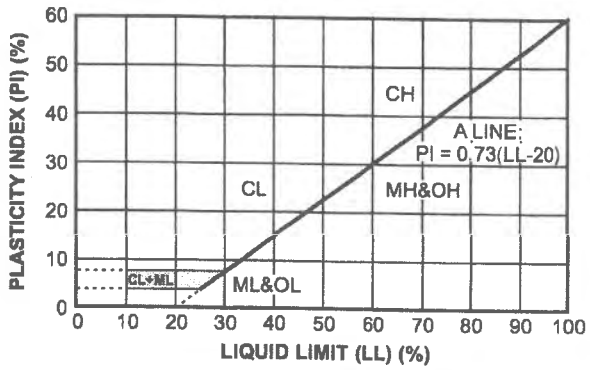
CONSISTENCY CLASSIFICATION

Description	Blows per Foot
Granular Soils	
Very Loose	< 5
Loose	5 – 15
Medium Dense	16 – 40
Dense	41 – 65
Very Dense	> 65
Cohesive Soils	
Very Soft	< 3
Soft	3 – 5
Firm	6 – 10
Stiff	11 – 20
Very Stiff	21 – 40
Hard	> 40

GRAIN SIZE CLASSIFICATION

Grain Type	*Standard Sieve Size*	*Grain Size in Millimeters*
Boulders	Above 12 inches	Above 305
Cobbles	12 to 13 inches	305 to 76.2
Gravel	3 inches to No. 4	76.2 to 4.76
Coarse-grained	3 to ¾ inches	76.2 to 19.1
Fine-grained	¾ inches to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.074
Coarse-grained	No. 4 to No. 10	4.76 to 2.00
Medium-grained	No. 10 to No. 40	2.00 to 0.042
Fine-grained	No. 40 to No. 200	0.042 to 0.074
Silt and Clay	Below No. 200	Below 0.074

PLASTICITY CHART



DRAFT

Log of Boring B1

Project: Psychiatric Health Facility

Project No: 022-20048

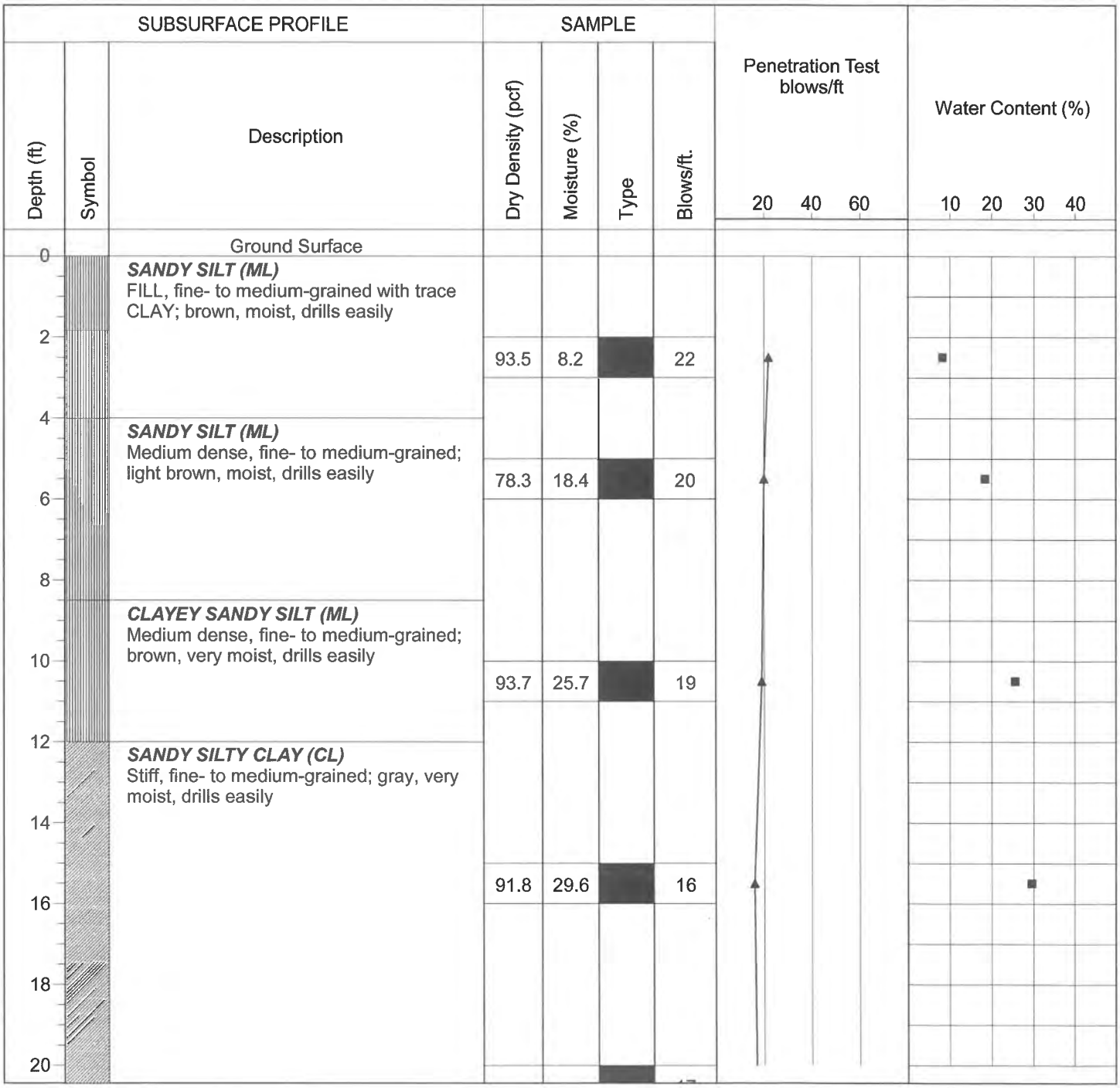
Client: County of Kern Construction Services Department

Figure No.: A-1

Location: Workman Street, Bakersfield, California

Logged By: Dave Adams

Depth to Water> **Initial:** None **At Completion:** None



Drill Method: Solid Flight

Drill Date: 4-28-20

Drill Rig: CME 45C-4

Krazan and Associates

Hole Size: 4½ Inches

Driller: Jim Watts

Elevation: 30 Feet

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Log of Boring B1

Project: Psychiatric Health Facility

Project No: 022-20048

Client: County of Kern Construction Services Department

Figure No.: A-1

Location: Workman Street, Bakersfield, California

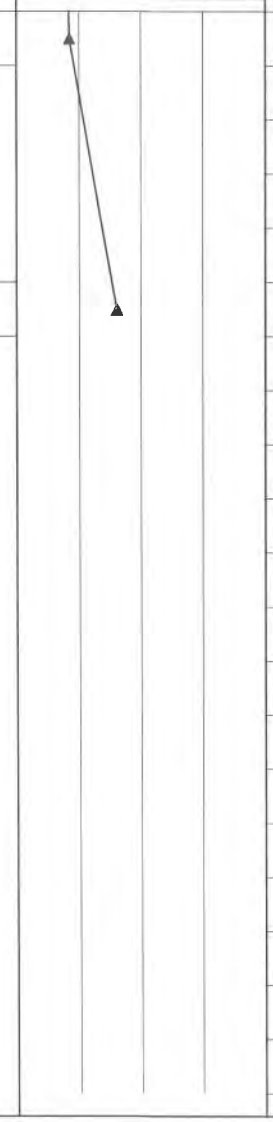
Logged By: Dave Adams

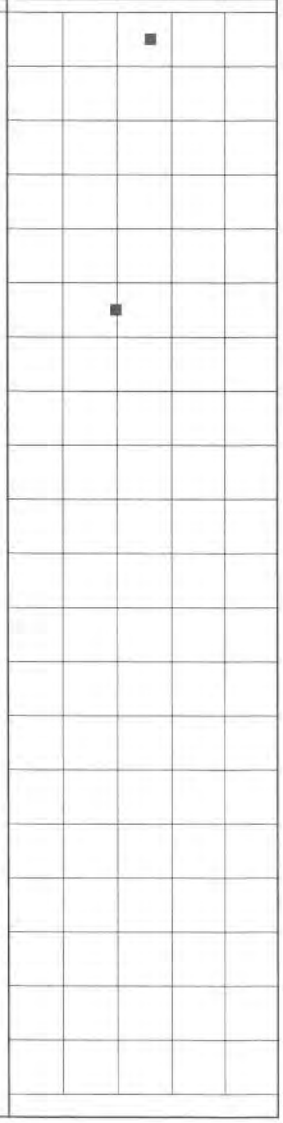
Depth to Water>

Initial: None

At Completion: None

Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.
22			98.5	26.2		17
24		***SANDY SILT (ML)*** Medium dense, fine- to medium-grained; gray, moist, drills easily				
26			105.3	19.8		32
28						
30		End of Borehole				
32						
34						
36						
38						
40						





Drill Method: Solid Flight

Drill Rig: CME 45C-4

Driller: Jim Watts

Krazan and Associates

Drill Date: 4-28-20

Hole Size: 4½ Inches

Elevation: 30 Feet

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Log of Boring B2

Project: Psychiatric Health Facility

Project No: 022-20048

Client: County of Kern Construction Services Department

Figure No.: A-2

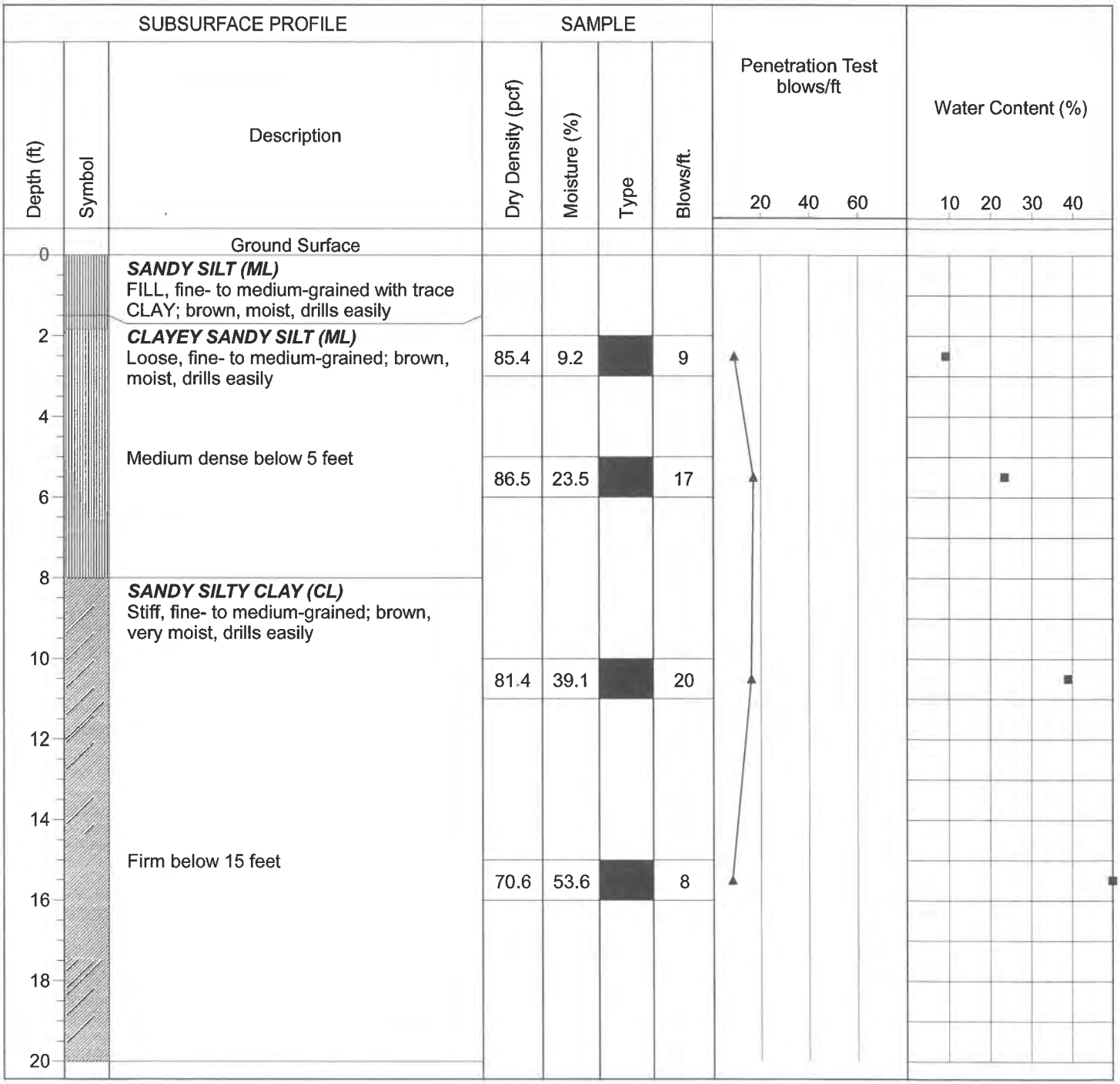
Location: Workman Street, Bakersfield, California

Logged By: Dave Adams

Depth to Water>

Initial: None

At Completion: None



Drill Method: Solid Flight

Drill Date: 4-28-20

Drill Rig: CME 45C-4

Krazan and Associates

Hole Size: 4½ Inches

Driller: Jim Watts

Elevation: 20 Feet

Sheet: 1 of 1

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Log of Boring B3

Project: Psychiatric Health Facility

Project No: 022-20048

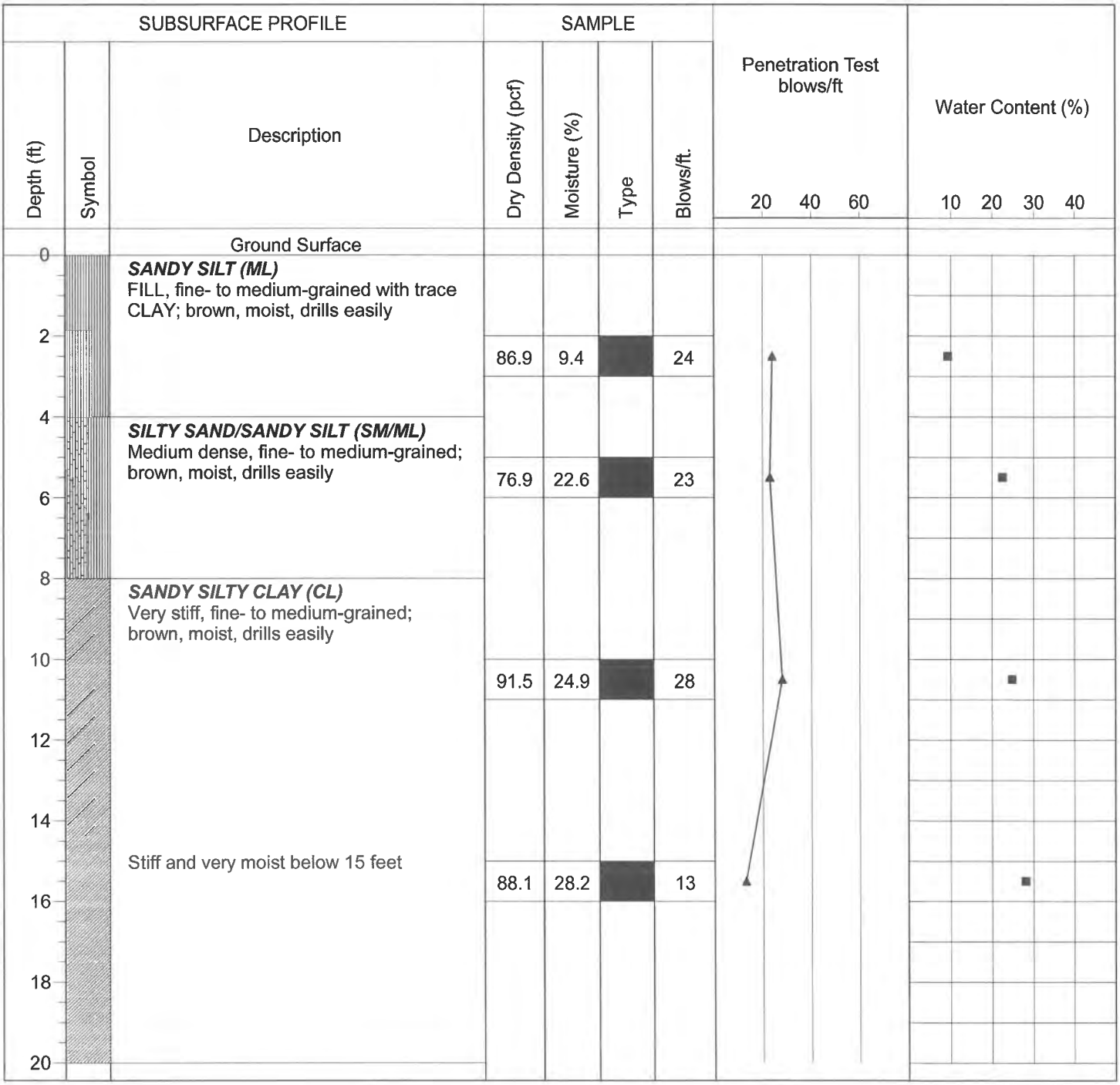
Client: County of Kern Construction Services Department

Figure No.: A-3

Location: Workman Street, Bakersfield, California

Logged By: Dave Adams

Depth to Water> **Initial:** None **At Completion:** None



Drill Method: Solid Flight

Drill Rig: CME 45C-4

Driller: Jim Watts

Krazan and Associates

Drill Date: 4-28-20

Hole Size: 4½ Inches

Elevation: 20 Feet

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Log of Boring B4

Project: Psychiatric Health Facility

Project No: 022-20048

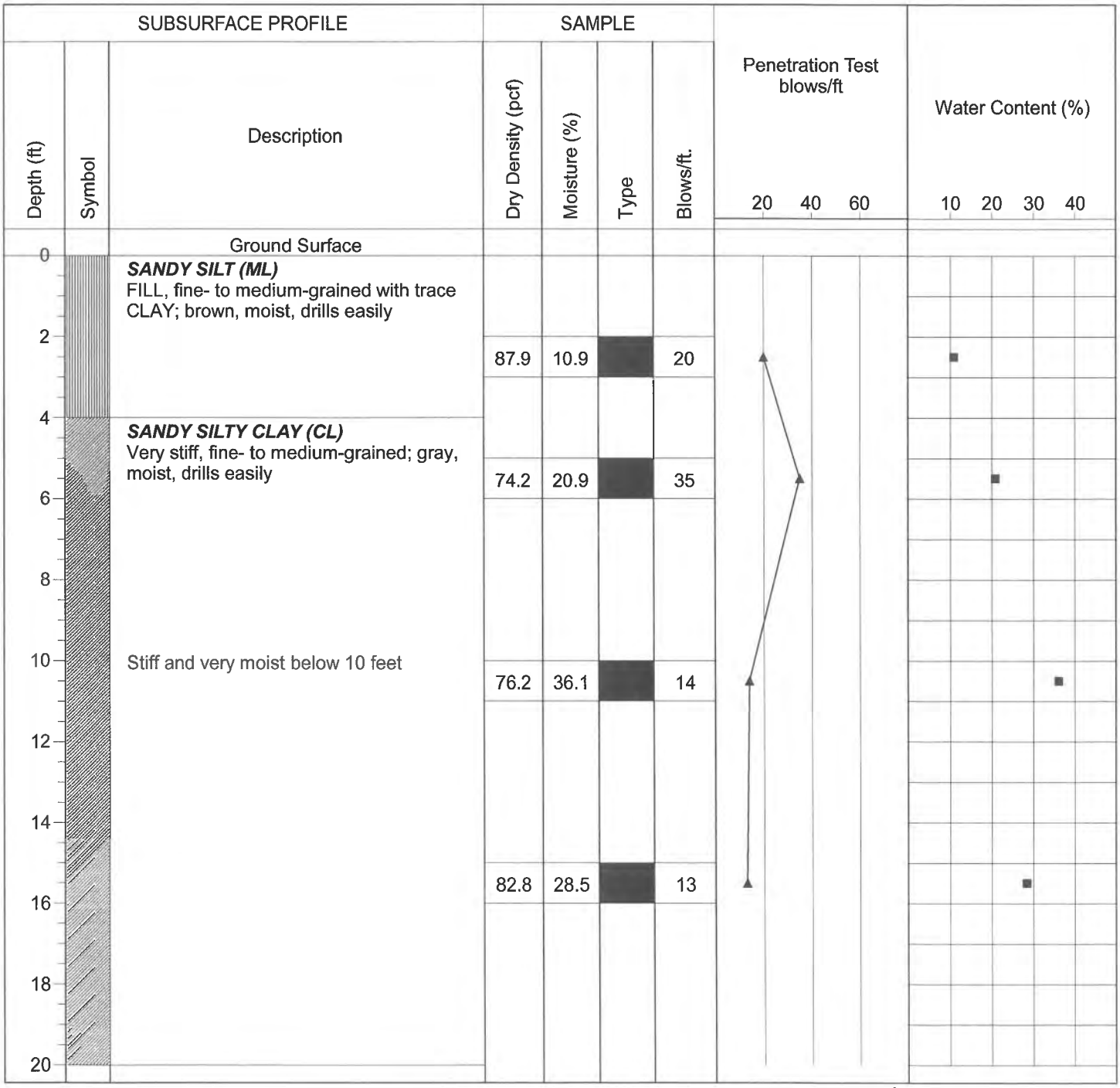
Client: County of Kern Construction Services Department

Figure No.: A-4

Location: Workman Street, Bakersfield, California

Logged By: Dave Adams

Depth to Water> **Initial:** None **At Completion:** None



Drill Method: Solid Flight

Drill Date: 4-28-20

Drill Rig: CME 45C-4

Krazan and Associates

Hole Size: 4½ Inches

Driller: Jim Watts

Elevation: 20 Feet

Sheet: 1 of 1

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Log of Boring B5

Project: Psychiatric Health Facility

Project No: 022-20048

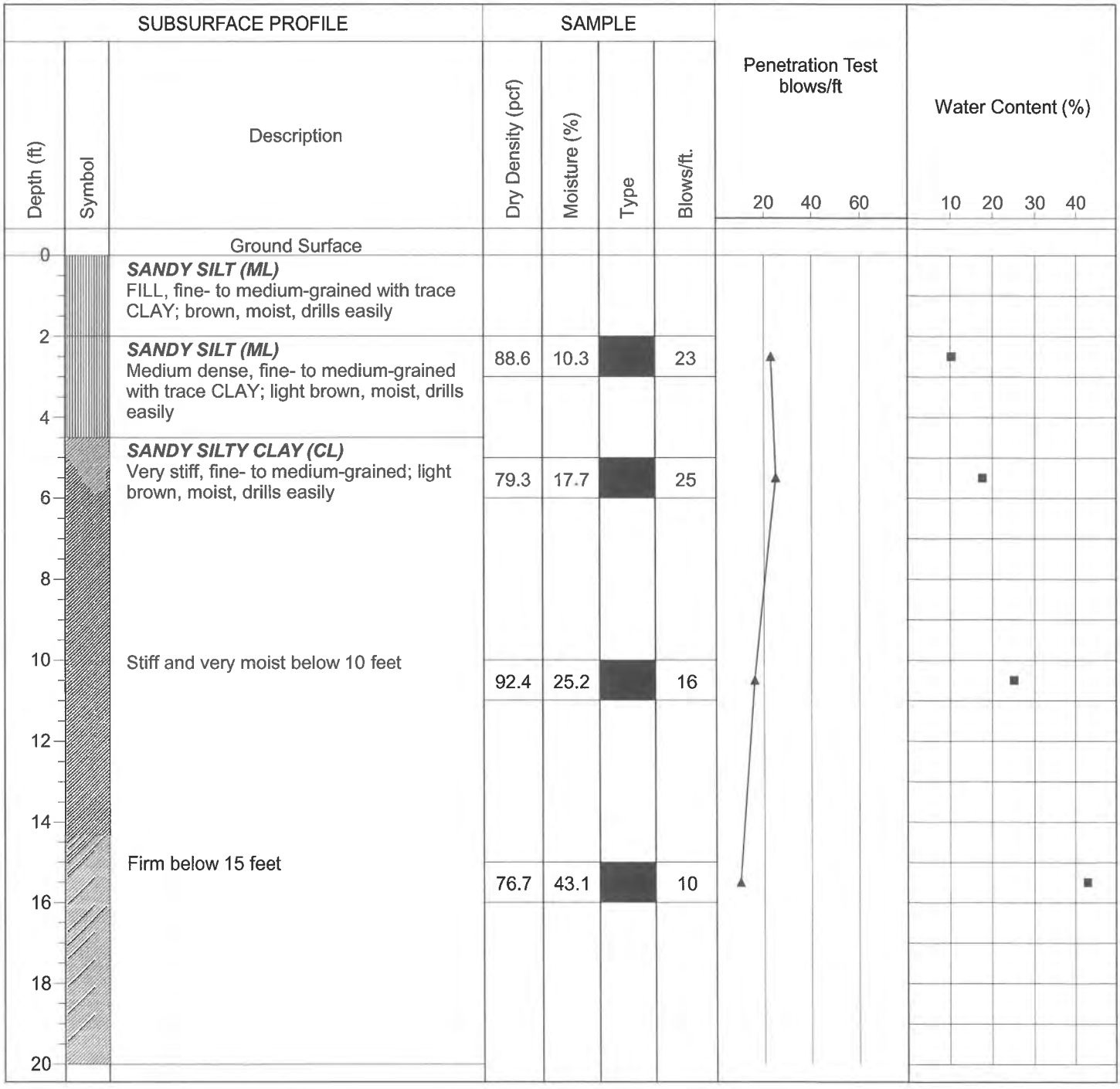
Client: County of Kern Construction Services Department

Figure No.: A-5

Location: Workman Street, Bakersfield, California

Logged By: Dave Adams

Depth to Water> **Initial:** None **At Completion:** None



Drill Method: Solid Flight

Drill Rig: CME 45C-4

Driller: Jim Watts

Krazan and Associates

Drill Date: 4-28-20

Hole Size: 4½ Inches

Elevation: 20 Feet

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Log of Boring B6

Project: Psychiatric Health Facility

Project No: 022-20048

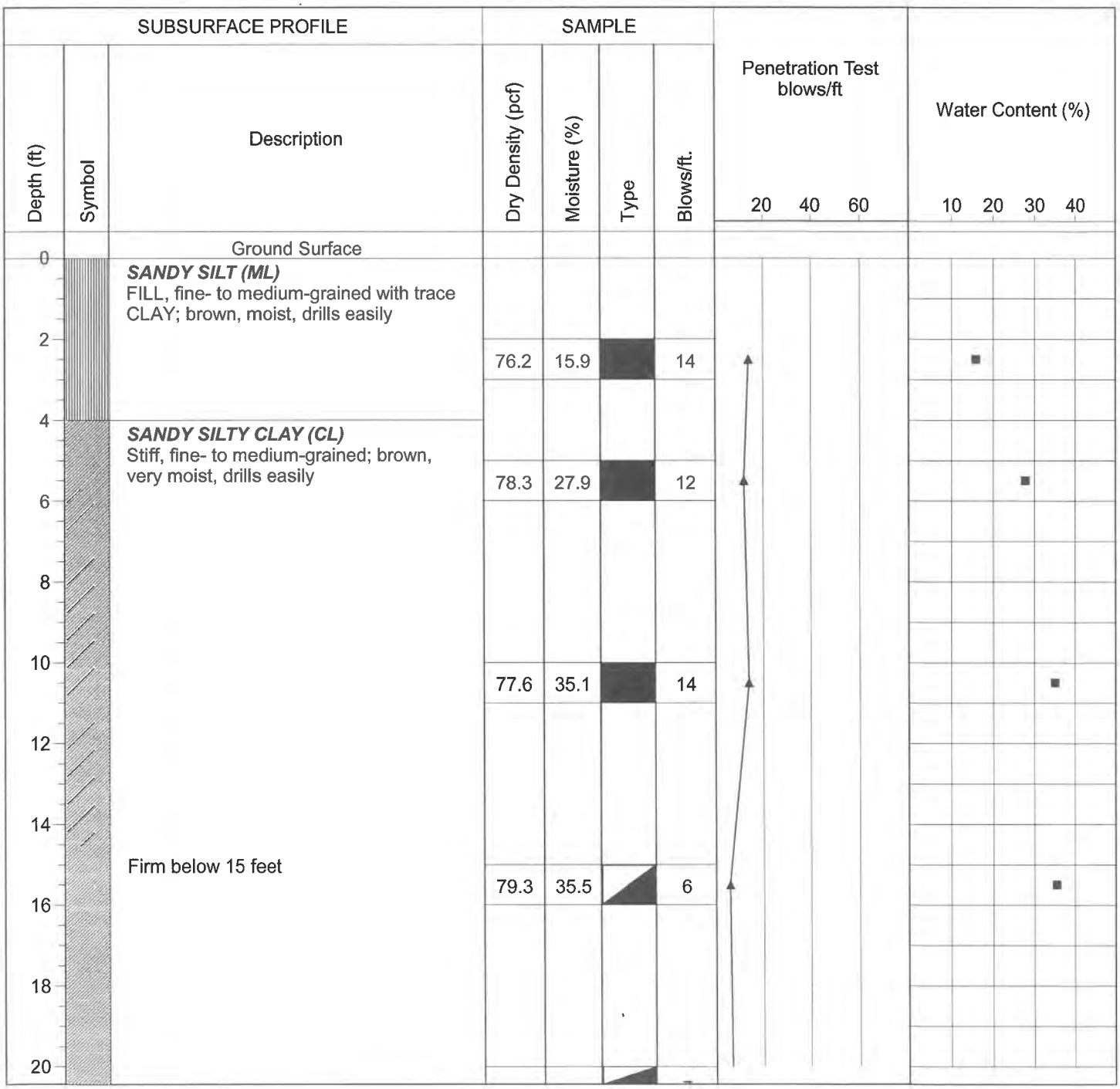
Client: County of Kern Construction Services Department

Figure No.: A-6

Location: Workman Street, Bakersfield, California

Logged By: Dave Adams

Depth to Water> **Initial:** 40 Feet **At Completion:** 39½ Feet



Drill Method: Hollow Stem

Drill Date: 4-28-20

Drill Rig: CME 45C-4

Krazan and Associates

Hole Size: 6½ Inches

Driller: Jim Watts

Elevation: 50 Feet

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Log of Boring B6

Project: Psychiatric Health Facility

Project No: 022-20048

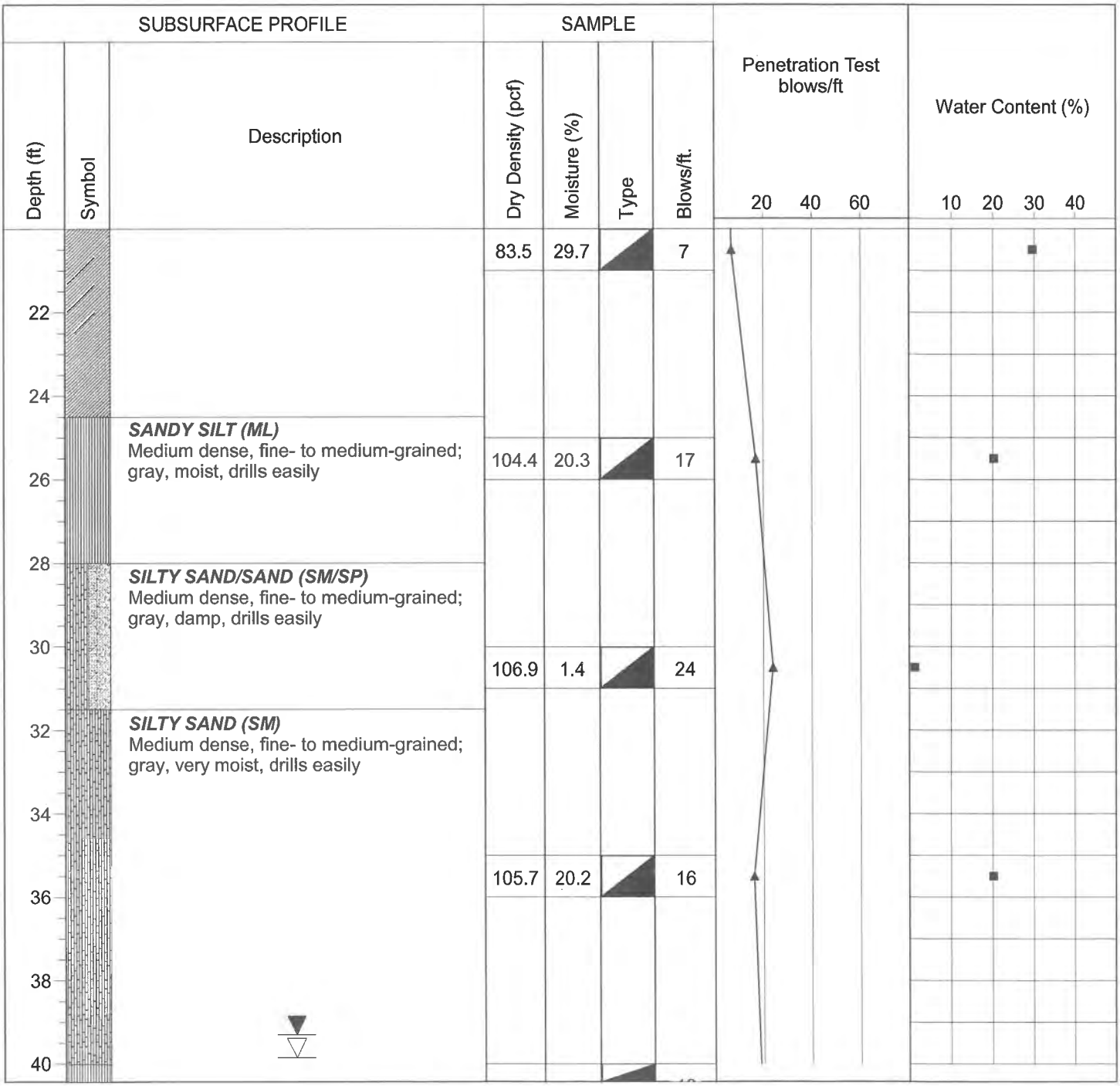
Client: County of Kern Construction Services Department

Figure No.: A-6

Location: Workman Street, Bakersfield, California

Logged By: Dave Adams

Depth to Water> **Initial:** 40 Feet **At Completion:** 39½ Feet



Drill Method: Hollow Stem

Drill Rig: CME 45C-4

Driller: Jim Watts

Krazan and Associates

Drill Date: 4-28-20

Hole Size: 6½ Inches

Elevation: 50 Feet

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Log of Boring B6

Project: Psychiatric Health Facility

Project No: 022-20048

Client: County of Kern Construction Services Department

Figure No.: A-6

Location: Workman Street, Bakersfield, California

Logged By: Dave Adams

Depth to Water> **Initial:** 40 Feet **At Completion:** 39½ Feet

SUBSURFACE PROFILE			SAMPLE				Penetration Test blows/ft	Water Content (%)
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	20 40 60	10 20 30 40
42		***SANDY SILT (ML)*** Medium dense, fine- to medium-grained with thin lenses of SAND; brown, saturated, drills easily	89.5	25.9		19		
44								
46			108.2	19.4		22		
48								
50		End of Borehole						
52								
54								
56								
58								
60								

Drill Method: Hollow Stem

Drill Rig: CME 45C-4

Driller: Jim Watts

Krazan and Associates

Drill Date: 4-28-20

Hole Size: 6½ Inches

Elevation: 50 Feet

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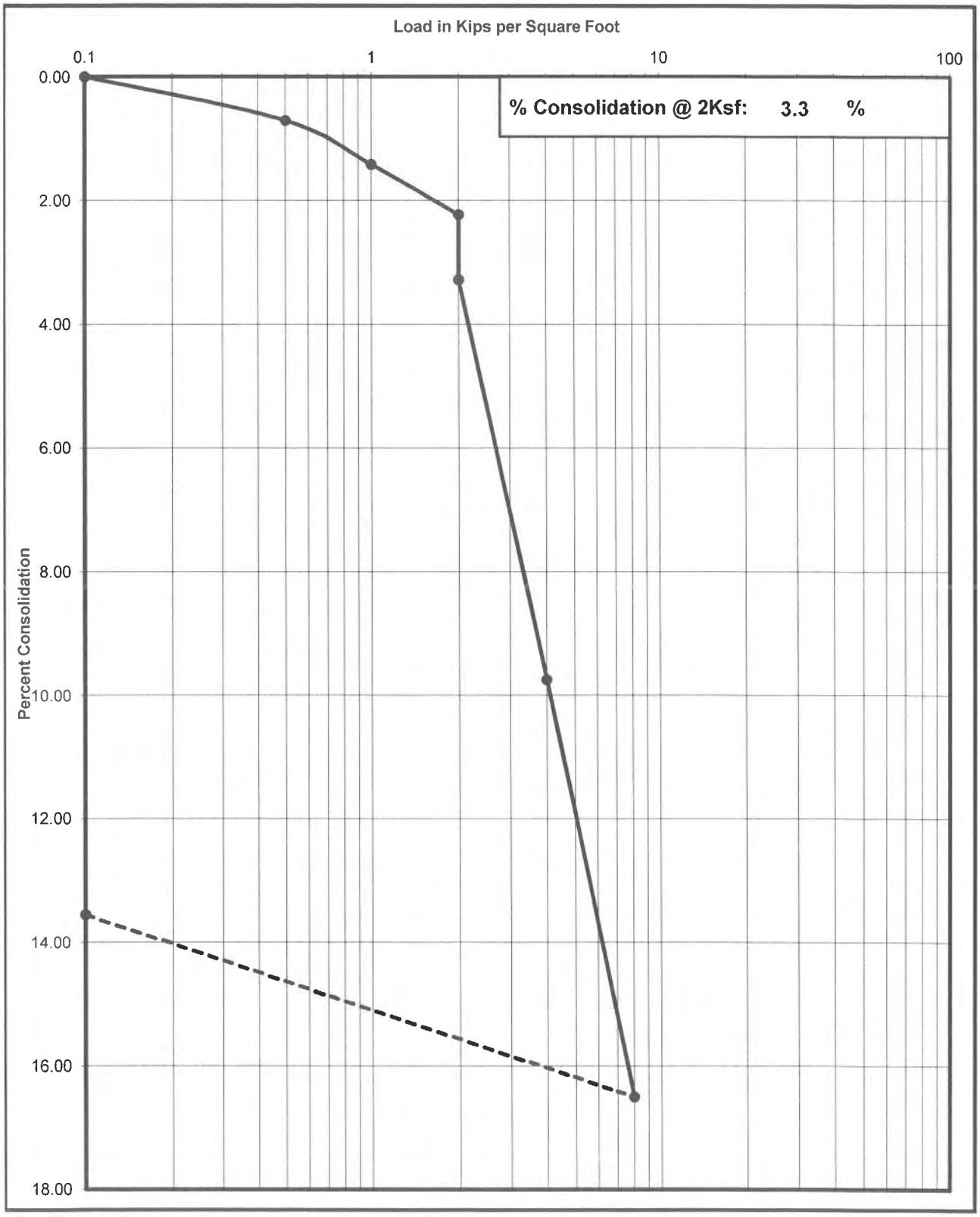
Consolidation Test

Project No	Boring No. & Depth	Date	Soil Classification
022-20048	B2 @ 2-3'	5/13/2020	ML



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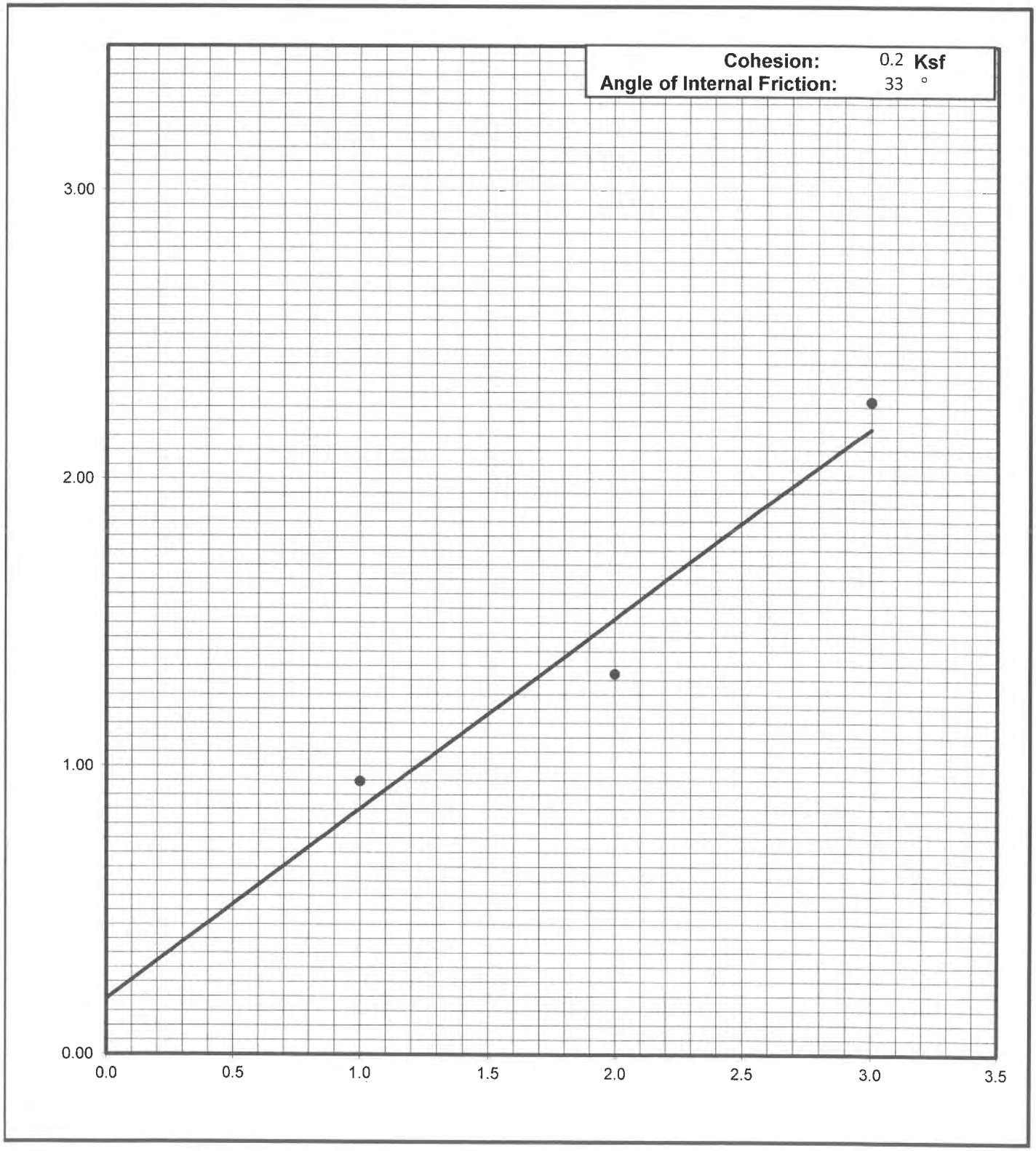
Shear Strength Diagram (Direct Shear)

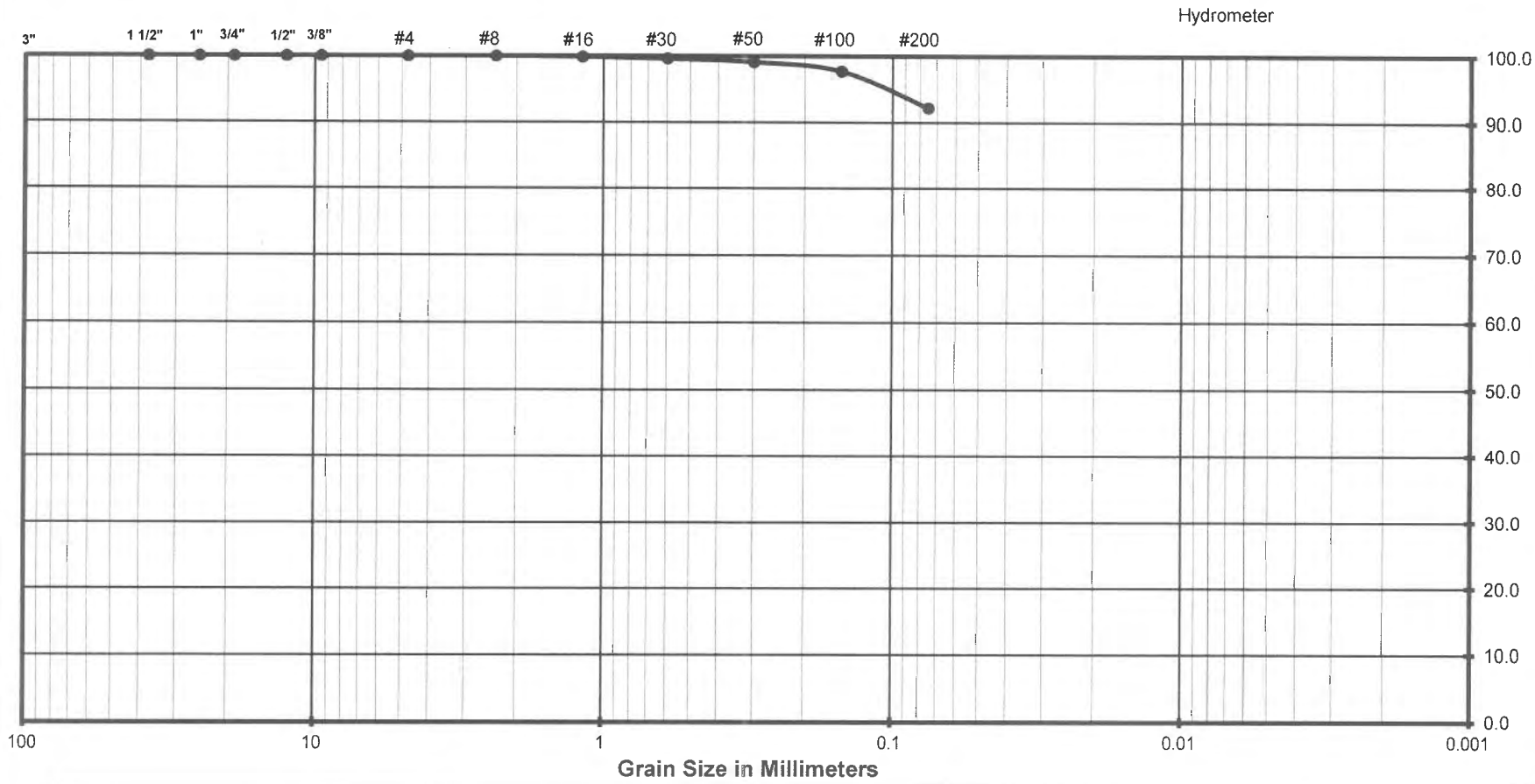
ASTM D - 3080 / AASHTO T - 236

Project Number	Boring No. & Depth	Soil Type	Date
022-20048	B6 @ 2-3'	ML	5/13/2020



Krazan Testing Laboratory

Grain Size Analysis



(Unified Soils Classification)

Project Name	Psychiatric Health Facility
Project Number	022-20048
Soil Classification	ML
Sample Number	B2 @ 2-3'

Krazan Testing Laboratory

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Expansion Index Test

ASTM D - 4829

Project Number	: 022-20048
Project Name	: Psychiatric Health Facility
Date	: 5/13/2020
Sample location/ Depth	: B6 @ 6-7'
Sample Number	: X1
Soil Classification	: ML w/ clay

Trial #	**1**	**2**	**3**
Weight of Soil & Mold, gms	725.6		
Weight of Mold, gms	369.2		
Weight of Soil, gms	356.4		
Wet Density, Lbs/cu.ft.	107.5		
Weight of Moisture Sample (Wet), gms	200.0		
Weight of Moisture Sample (Dry), gms	173.6		
Moisture Content, %	15.2		
Dry Density, Lbs/cu.ft.	93.3		
Specific Gravity of Soil	2.7		
Degree of Saturation, %	51.0		

Time	Inital	30 min	1 hr	6hrs	12 hrs	24 hrs
Dial Reading	0	--	--	--	--	0.0402

Expansion Index $_{measured}$ = 40.2

Expansion Index = 40

Expansion Potential Table	
Exp. Index	Potential Exp.
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

Krazan Testing Laboratory

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Plasticity Index of Soils

ASTM D4318/AASHTO T89 T90/CT 204

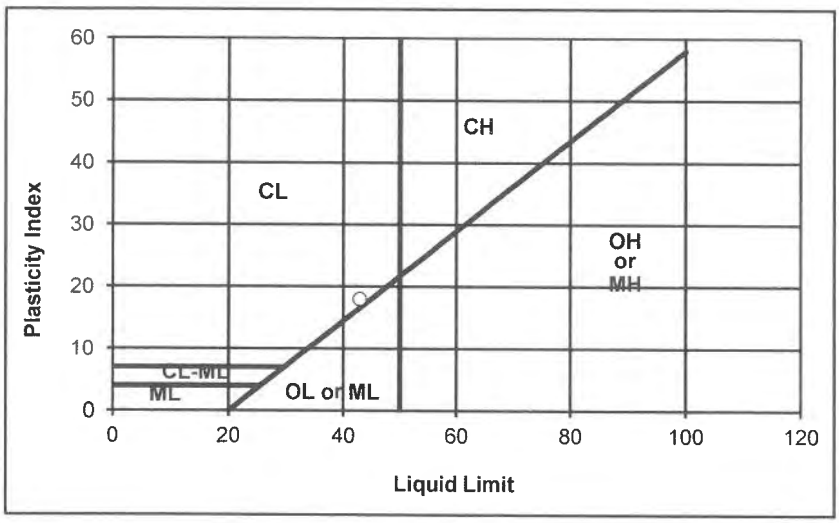
Project: **Psychiatric Health Facility**
Project Number: **022-20048**
Date Sampled: 4/28/2020
Sampled By: DA
Sample Number:
Sample Location: B6 @ 10-11'
Sample Description: CL

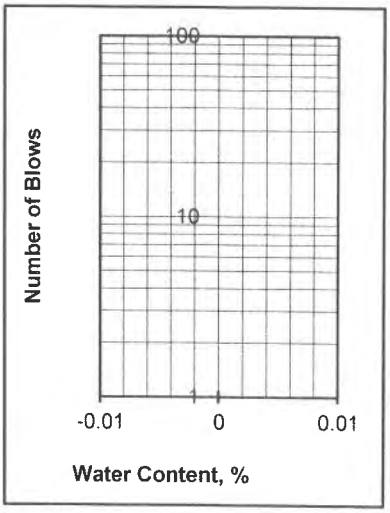
Date Tested: 5/12/2020
Tested By: J Mitchell
Verified By: J Gruszczynski

Trial Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare (g)	27.73	30.76		30.32	32.83	
Weight of Dry Soil & Tare (g)	25.62	28.07		26.33	28.10	
Weight of Tare (g)	17.11	17.34		17.04	17.09	
Weight of water (g)	2.11	2.69		3.98	4.73	
Weight of Dry Soil (g)	8.51	10.73		9.29	11.01	
Water Content (% of dry wt.)	24.8%	25.1%		42.9%	42.9%	
Number of Blows				25	25	

Plastic Limit : 25 **Liquid Limit : 43**

Plasticity Index : 18
Unified Soil Classification : CL **Requirement:**
Approx. % of Material Retained on # 40 Sieve:





Departures from Outlined Procedure:

Unusual Conditions, Other Notes:

DRAFT

Plasticity Index of Soils

ASTM D4318/AASHTO T89 T90/CT 204

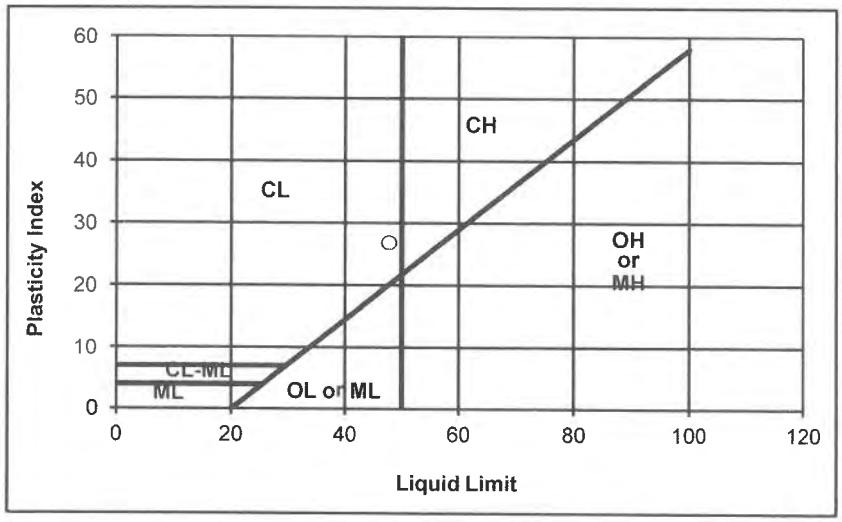
Project: **Psychiatric Health Facility**
Project Number: **022-20048**
Date Sampled: 4/28/2020
Sampled By: DA
Sample Number:
Sample Location: B6 @ 15-16'
Sample Description: CL

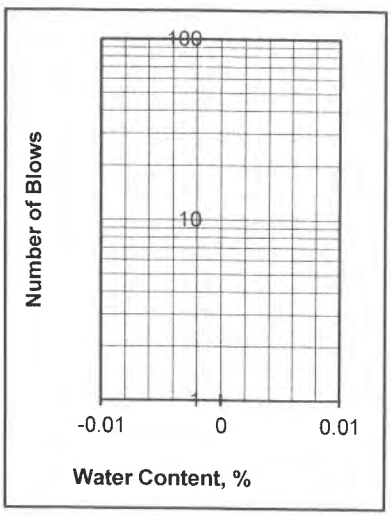
Date Tested: 5/12/2020
Tested By: J Mitchell
Verified By: J Gruszczynski

Trial Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare (g)	26.59	27.41		32.57	33.51	
Weight of Dry Soil & Tare (g)	24.91	25.71		27.55	28.22	
Weight of Tare (g)	17.11	17.34		17.04	17.10	
Weight of water (g)	1.68	1.70		5.02	5.30	
Weight of Dry Soil (g)	7.80	8.37		10.51	11.12	
Water Content (% of dry wt.)	21.6%	20.3%		47.8%	47.6%	
Number of Blows				25	25	

Plastic Limit : 21 **Liquid Limit : 48**

Plasticity Index : 27
Unified Soil Classification : CL
Requirement:
Approx. % of Material Retained on # 40 Sieve:





Departures from Outlined Procedure:

Unusual Conditions, Other Notes:

DRAFT

Plasticity Index of Soils

ASTM D4318/AASHTO T89 T90/CT 204

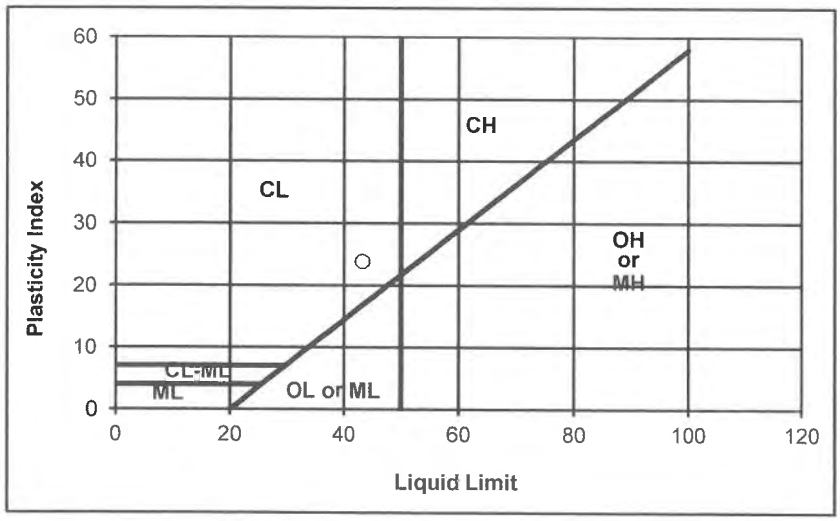
Project: **Psychiatric Health Facility**
Project Number: **022-20048**
Date Sampled: 4/28/2020
Sampled By: DA
Sample Number:
Sample Location: B6 @ 20-21'
Sample Description: CL

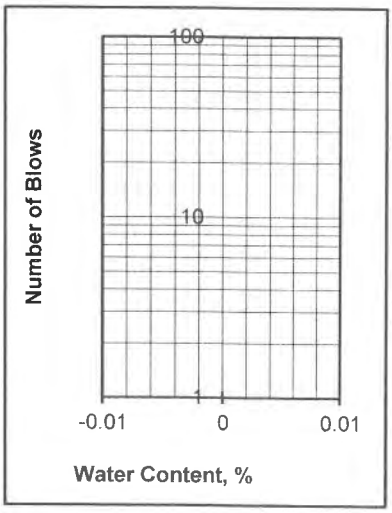
Date Tested: 5/12/2020
Tested By: J Mitchell
Verified By: J Gruszczynski

Trial Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare (g)	25.28	24.51		27.71	32.10	
Weight of Dry Soil & Tare (g)	23.39	22.78		23.48	27.58	
Weight of Tare (g)	13.14	13.56		13.76	17.09	
Weight of water (g)	1.89	1.73		4.23	4.52	
Weight of Dry Soil (g)	10.25	9.22		9.72	10.50	
Water Content (% of dry wt.)	18.4%	18.8%		43.5%	43.0%	
Number of Blows				25	25	

Plastic Limit : 19 **Liquid Limit : 43**

Plasticity Index : 24
Unified Soil Classification : CL **Requirement:**
Approx. % of Material Retained on # 40 Sieve:





Departures from Outlined Procedure:

Unusual Conditions, Other Notes:

DRAFT

Plasticity Index of Soils

ASTM D4318/AASHTO T89 T90/CT 204

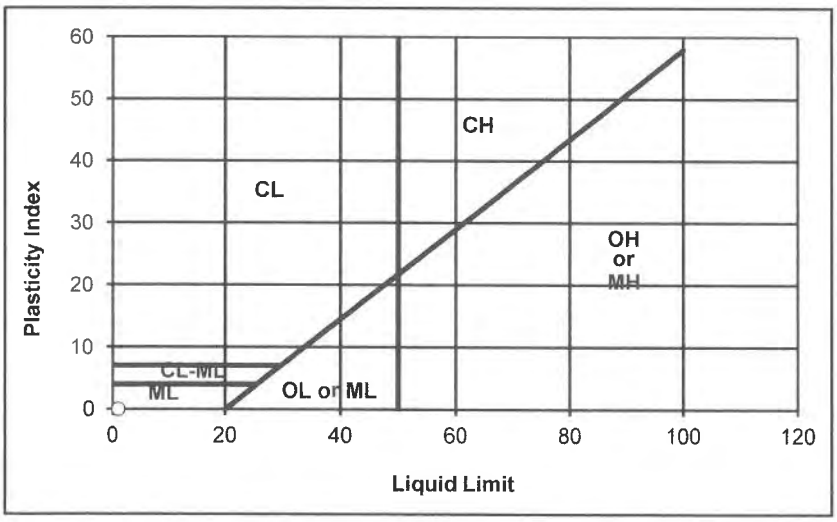
Project: **Psychiatric Health Facility**
Project Number: **022-20048**
Date Sampled: 4/28/2020
Sampled By: DA
Sample Number:
Sample Location: B6 @ 25-26'
Sample Description: ML

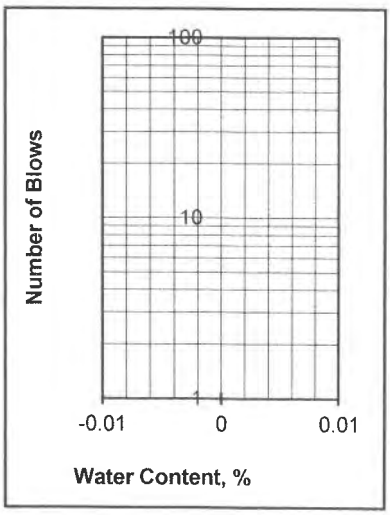
Date Tested: 5/12/2020
Tested By: J Mitchell
Verified By: J Gruszczynski

	Plastic Limit			Liquid Limit		
Trial Number	1	2	3	1	2	3
Weight of Wet Soil & Tare (g)						
Weight of Dry Soil & Tare (g)						
Weight of Tare (g)						
Weight of water (g)						
Weight of Dry Soil (g)						
Water Content (% of dry wt.)						
Number of Blows						

Plastic Limit : N/D **Liquid Limit : N/D**

Plasticity Index : NON-PLASTIC
Unified Soil Classification : NON-PLASTIC **Requirement:**
Approx. % of Material Retained on # 40 Sieve:





Departures from Outlined Procedure:

Unusual Conditions, Other Notes:

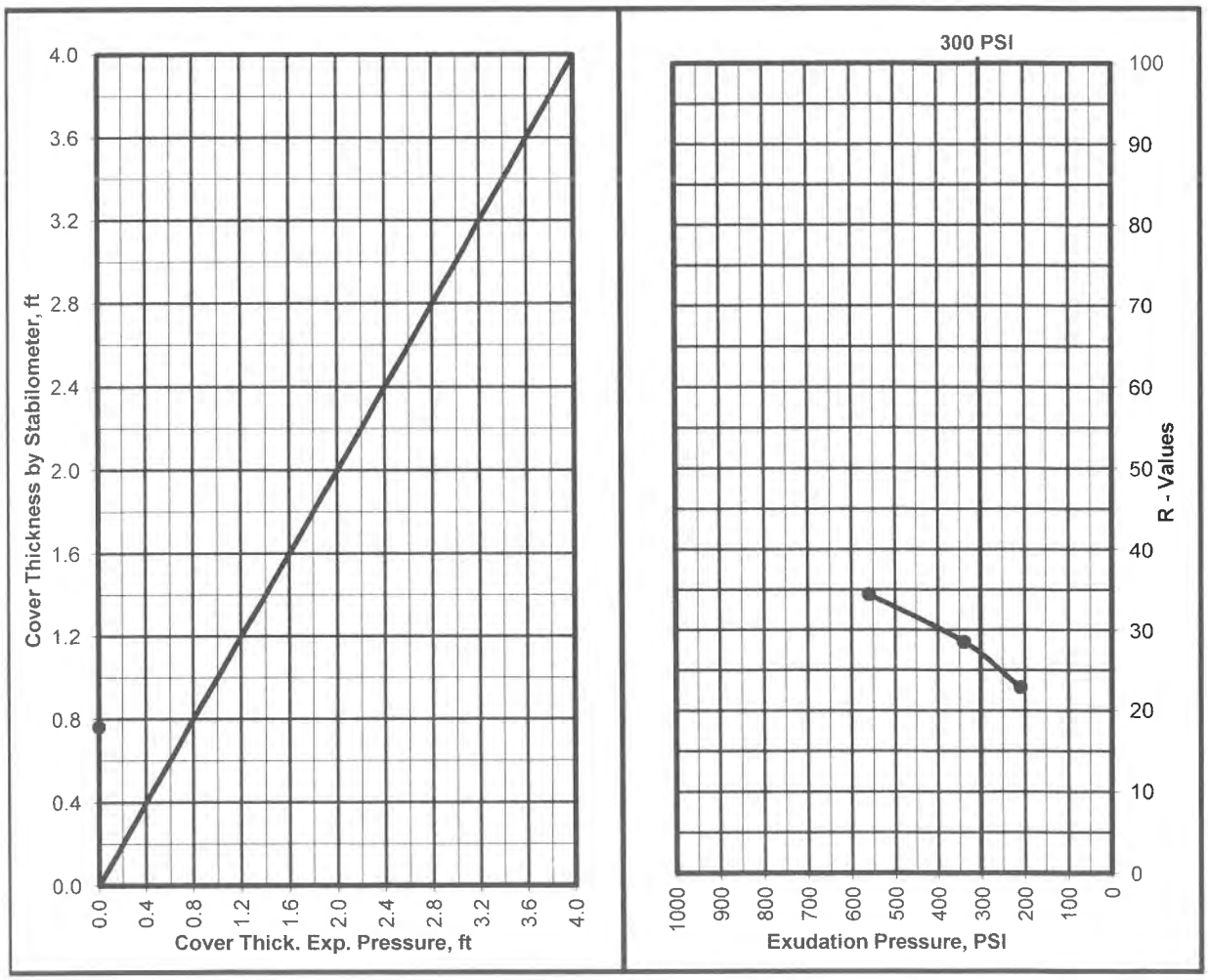
DRAFT

R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	022-20048
Project Name	:	Psychiatric Health Facility
Date	:	5/6/2020
Sample Location/Curve Number	:	RV#1
Soil Classification	:	ML

TEST	A	B	C
Percent Moisture @ Compaction, %	20.0	21.1	19.2
Dry Density, lbm/cu.ft.	104.5	106.5	104.5
Exudation Pressure, psi	340	210	560
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	29	23	34

R Value at 300 PSI Exudation Pressure	**27**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**



Krazan Testing Laboratory

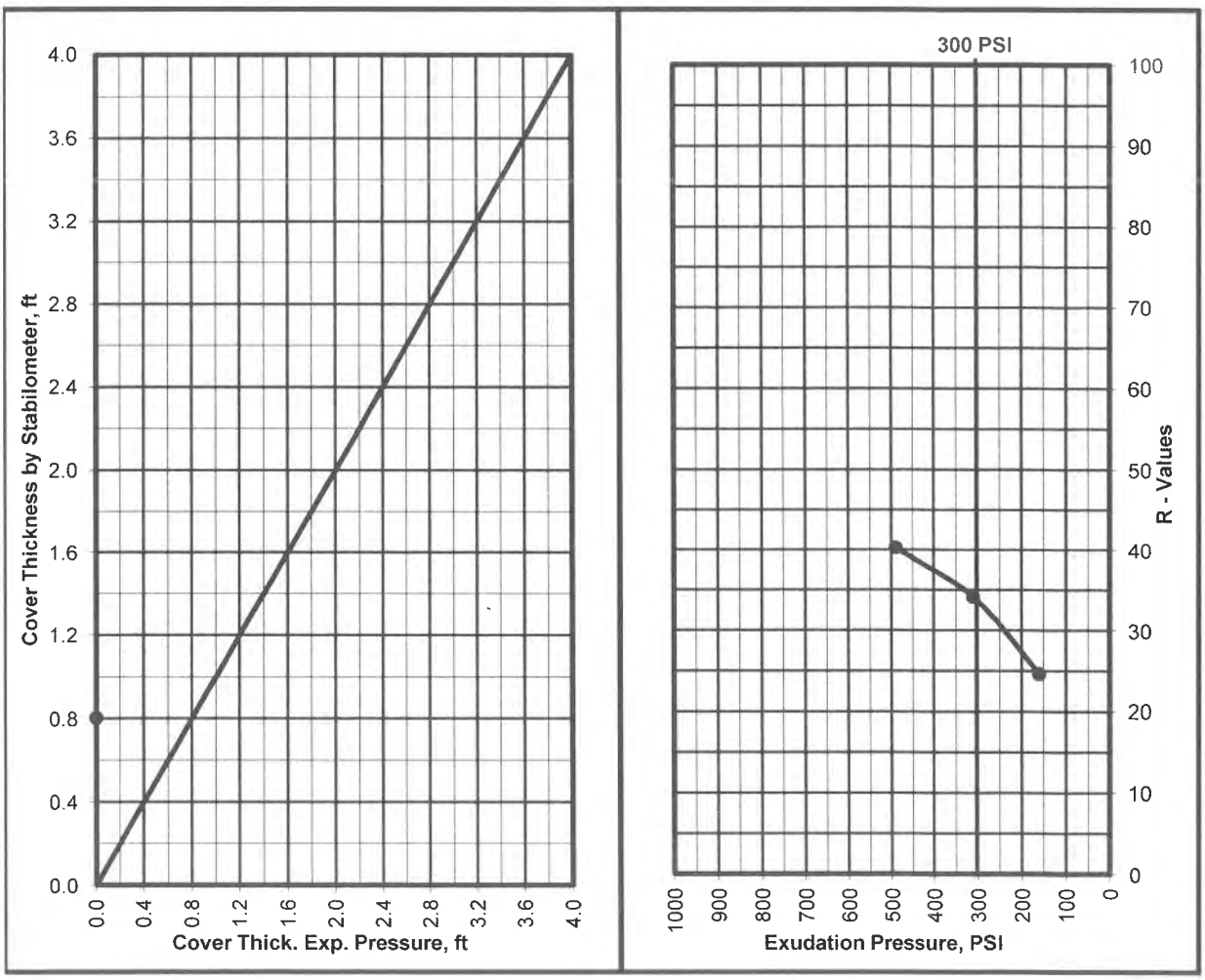
DRAFT

R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	022-20048
Project Name	:	Psychiatric Health Facility
Date	:	5/6/2020
Sample Location/Curve Number	:	RV#2
Soil Classification	:	SM-ML

TEST	A	B	C
Percent Moisture @ Compaction, %	17.4	16.3	15.5
Dry Density, lbm/cu.ft.	107.2	110.4	111.1
Exudation Pressure, psi	160	310	490
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	25	34	40

R Value at 300 PSI Exudation Pressure	**34**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**



Krazan Testing Laboratory

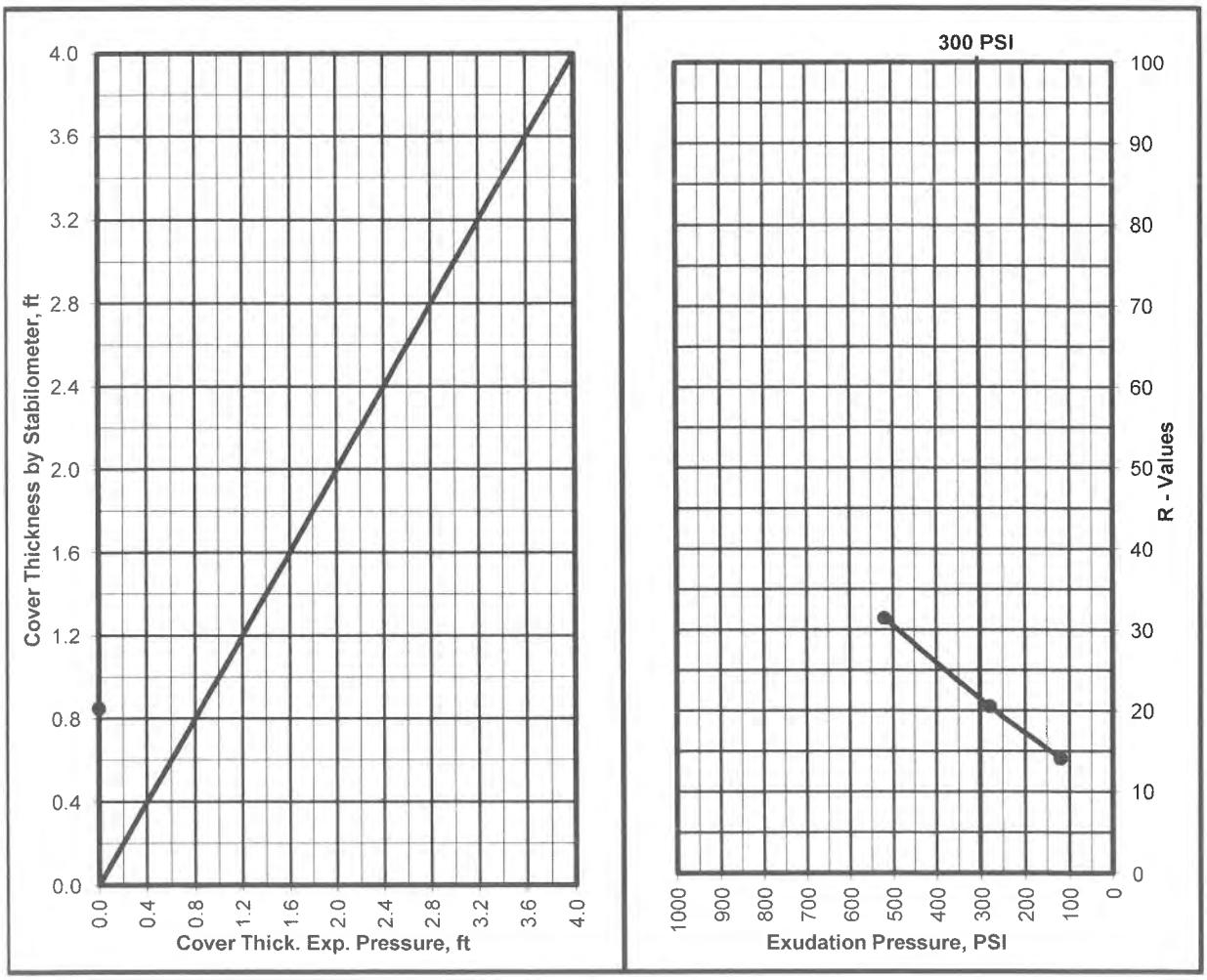
DRAFT

R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	022-20048
Project Name	:	Psychiatric Health Facility
Date	:	5/8/2020
Sample Location/Curve Number	:	RV#3
Soil Classification	:	ML

TEST	A	B	C
Percent Moisture @ Compaction, %	20.6	19.5	21.4
Dry Density, lbm/cu.ft.	103.6	103.2	103.9
Exudation Pressure, psi	280	520	120
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	21	31	14

R Value at 300 PSI Exudation Pressure	**21**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**



Krazan Testing Laboratory

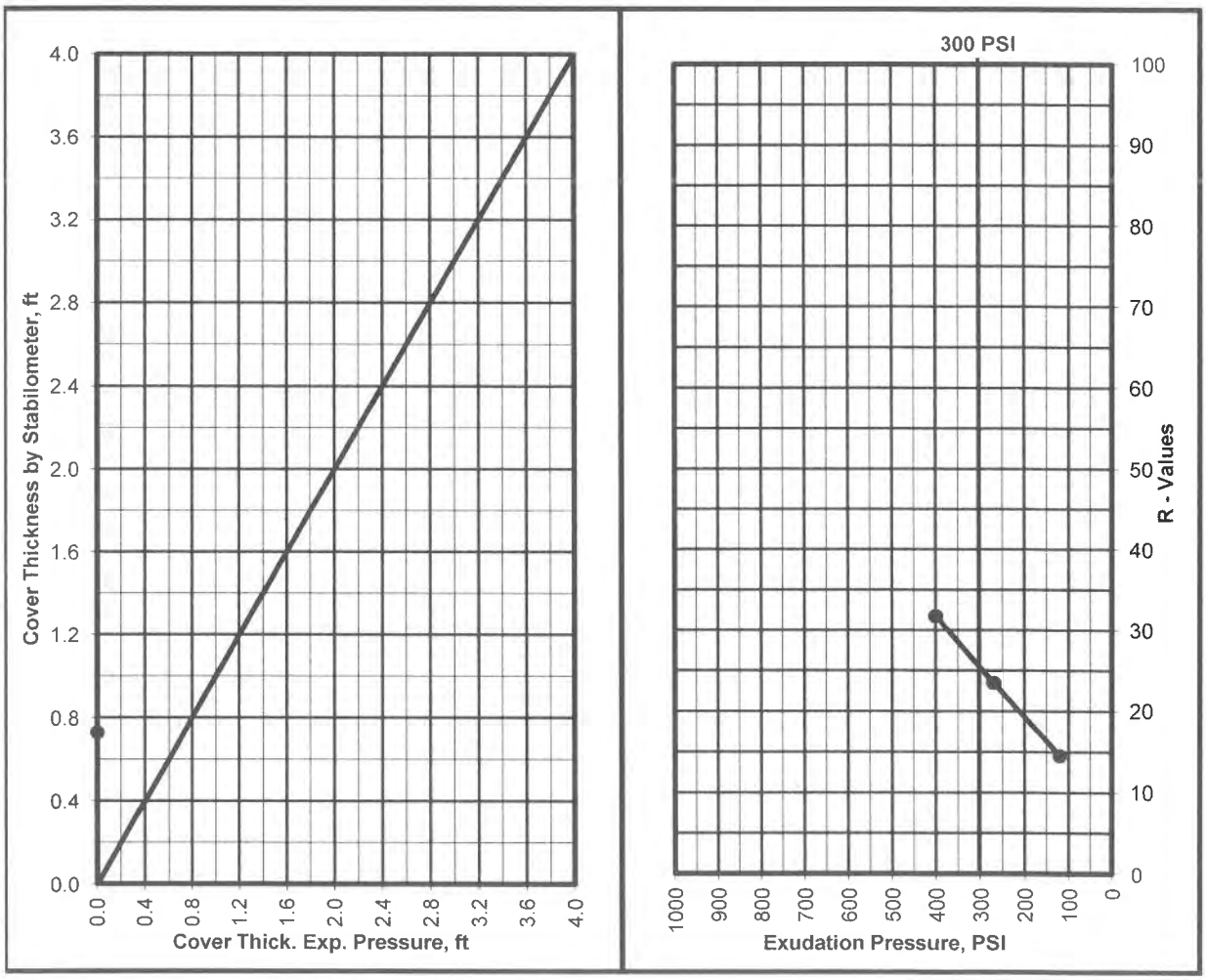
DRAFT

R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	022-20048
Project Name	:	Psychiatric Health Facility
Date	:	5/11/2020
Sample Location/Curve Number	:	RV#4
Soil Classification	:	ML

TEST	A	B	C
Percent Moisture @ Compaction, %	15.6	16.7	17.2
Dry Density, lbm/cu.ft.	110.5	108.6	108.2
Exudation Pressure, psi	400	270	120
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	32	24	15

R Value at 300 PSI Exudation Pressure	**25**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**



Krazan Testing Laboratory

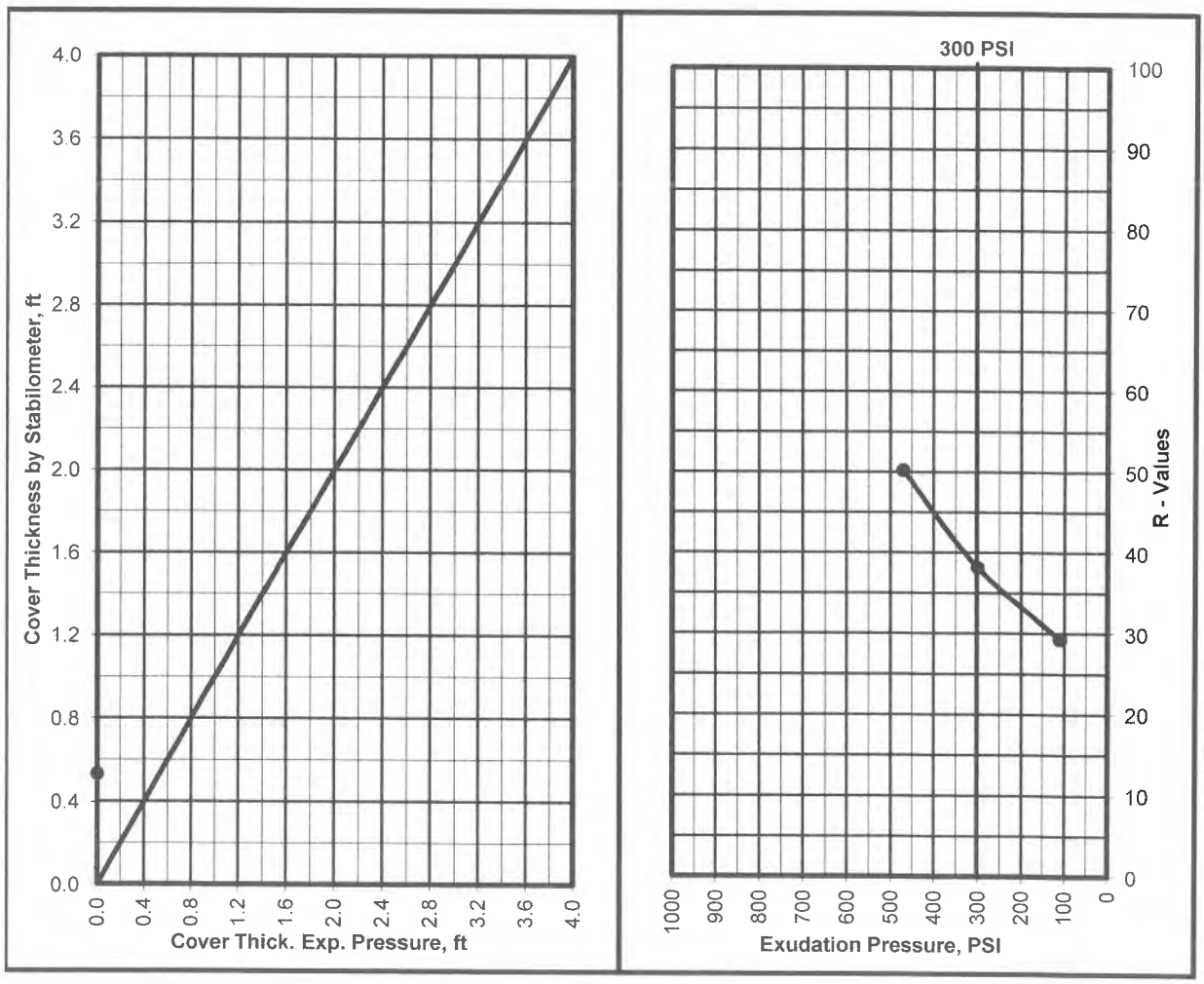
DRAFT

R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	022-20048
Project Name	:	Psychiatric Health Facility
Date	:	5/11/2020
Sample Location/Curve Number	:	RV#5
Soil Classification	:	SM-ML

TEST	A	B	C
Percent Moisture @ Compaction, %	16.2	17.3	17.9
Dry Density, lbm/cu.ft.	109.0	107.2	106.3
Exudation Pressure, psi	470	300	110
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	50	38	29

R Value at 300 PSI Exudation Pressure	**38**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**



Krazan Testing Laboratory

APPENDIX B

EARTHWORK SPECIFICATIONS

GENERAL

When the text of the report conflicts with the general specifications in this appendix, the recommendations in the report have precedence.

SCOPE OF WORK: These specifications and applicable plans pertain to and include all earthwork associated with the site rough grading, including but not limited to the furnishing of all labor, tools, and equipment necessary for site clearing and grubbing, stripping, preparation of foundation materials for receiving fill, excavation, processing, placement and compaction of fill and backfill materials to the lines and grades shown on the project grading plans, and disposal of excess materials.

PERFORMANCE: The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications. This work shall be inspected and tested by a representative of Krazan and Associates, Inc., hereinafter known as the Soils Engineer and/or Testing Agency. Attainment of design grades when achieved shall be certified by the project Civil Engineer. Both the Soils Engineer and the Civil Engineer are the Owner's representatives. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he shall make the necessary readjustments until all work is deemed satisfactory as determined by both the Soils Engineer and the Civil Engineer. No deviation from these specifications shall be made except upon written approval of the Soils Engineer, Civil Engineer or project Architect.

No earthwork shall be performed without the physical presence or approval of the Soils Engineer. The Contractor shall notify the Soils Engineer at least 2 working days prior to the commencement of any aspect of the site earthwork.

The Contractor agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner and the Engineers harmless from any and all liability, real or alleged, in connection with the performance of work on this project, except for liability arising from the sole negligence of the Owner or the Engineers.

TECHNICAL REQUIREMENTS: All compacted materials shall be densified to a density not less than 90 percent relative compaction based on ASTM Test Method D1557 or CAL-216, as specified in the technical portion of the Soil Engineer's report. The location and frequency of field density tests shall be as determined by the Soils Engineer. The results of these tests and compliance with these specifications shall be the basis upon which satisfactory completion of work will be judged by the Soils Engineer.

SOILS AND FOUNDATION CONDITIONS: The Contractor is presumed to have visited the site and to have familiarized himself with existing site conditions and the contents of the data presented in the soil report.

The Contractor shall make his own interpretation of the data contained in said report, and the Contractor shall not be relieved of liability under the Contract documents for any loss sustained as a result of any variance between conditions indicated by or deduced from said report and the actual conditions encountered during the progress of the work.

DUST CONTROL: The work includes dust control as required for the alleviation or prevention of any dust nuisance on or about the site or the borrow area, or off-site if caused by the Contractor's operation either during the performance of the earthwork or resulting from the conditions in which the Contractor leaves the site. The Contractor shall assume all liability, including court costs of codefendants, for all claims related to dust or windblown materials attributable to his work.

SITE PREPARATION

Site preparation shall consist of site clearing and grubbing and the preparations of foundation materials for receiving fill.

CLEARING AND GRUBBING: The Contractor shall accept the site in this present condition and shall demolish and/or remove from the area of designated project earthwork all structures, both surface and subsurface, trees, brush, roots, debris, organic matter, and all other matter determined by the Soils Engineer to be deleterious or otherwise unsuitable. Such materials shall become the property of the Contractor and shall be removed from the site.

Tree root systems in proposed building areas should be removed to a minimum depth of 3 feet and to such an extent which would permit removal of all roots larger than 1 inch. Tree roots removed in parking areas may be limited to the upper 1½ feet of the ground surface. Backfill of tree root excavations should not be permitted until all exposed surfaces have been inspected and the Soils Engineer is present for the proper control of backfill placement and compaction. Burning in areas which are to receive fill materials shall not be permitted.

SUBGRADE PREPARATION: Surfaces to receive Engineered Fill, building or slab loads shall be prepared as outlined above, excavated/scarified to a depth of 12 inches, moisture-conditioned as necessary, and compacted to 90 percent relative compaction.

Loose soil areas, areas of uncertified fill, and/or areas of disturbed soils shall be moisture-conditioned as necessary and recompacted to 90 percent relative compaction. All ruts, hummocks, or other uneven surface features shall be removed by surface grading prior to placement of any fill materials. All areas which are to receive fill materials shall be approved by the Soils Engineer prior to the placement of any of the fill material.

EXCAVATION: All excavation shall be accomplished to the tolerance normally defined by the Civil Engineer as shown on the project grading plans. All over-excavation below the grades specified shall be backfilled at the Contractor's expense and shall be compacted in accordance with the applicable technical requirements.

FILL AND BACKFILL MATERIAL: No material shall be moved or compacted without the presence of the Soils Engineer. Material from the required site excavation may be utilized for construction site fills provided prior approval is given by the Soils Engineer. All materials utilized for constructing site fills shall be free from vegetation or other deleterious matter as determined by the Soils Engineer.

PLACEMENT, SPREADING AND COMPACTION: The placement and spreading of approved fill materials and the processing and compaction of approved fill and native materials shall be the responsibility of the Contractor. However, compaction of fill materials by flooding, ponding, or jetting shall not be permitted unless specifically approved by local code, as well as the Soils Engineer.

Both cut and fill areas shall be surface-compacted to the satisfaction of the Soils Engineer prior to final acceptance.

SEASONAL LIMITS: No fill material shall be placed, spread, or rolled while it is frozen or thawing or during unfavorable wet weather conditions. When the work is interrupted by heavy rains, fill operations shall not be resumed until the Soils Engineer indicates that the moisture content and density of previously placed fill are as specified.

APPENDIX C

PAVEMENT SPECIFICATIONS

1. DEFINITIONS - The term "pavement" shall include asphaltic concrete surfacing, untreated aggregate base, and aggregate subbase. The term "subgrade" is that portion of the area on which surfacing, base, or subbase is to be placed.

The term "Standard Specifications": hereinafter referred to is the 2018 Standard Specifications of the State of California, Department of Transportation, and the "Materials Manual" is the Materials Manual of Testing and Control Procedures, State of California, Department of Public Works, Division of Highways. The term "relative compaction" refers to the field density expressed as a percentage of the maximum laboratory density as defined in the applicable tests outlined in the Materials Manual.

2. SCOPE OF WORK - This portion of the work shall include all labor, materials, tools, and equipment necessary for, and reasonably incidental to the completion of the pavement shown on the plans and as herein specified, except work specifically noted as "Work Not Included."

3. PREPARATION OF THE SUBGRADE - The Contractor shall prepare the surface of the various subgrades receiving subsequent pavement courses to the lines, grades, and dimensions given on the plans. The upper 12 inches of the soil subgrade beneath the pavement section shall be compacted to a minimum relative compaction of 90 percent. The finished subgrades shall be tested and approved by the Soils Engineer prior to the placement of additional pavement courses.

4. UNTREATED AGGREGATE BASE - The aggregate base material shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate base material shall conform to the requirements of Section 26 of the Standard Specifications for Class 2 material, 1½ inches maximum size. The aggregate base material shall be spread and compacted in accordance with Section 26 of the Standard Specifications. The aggregate base material shall be spread in layers not exceeding 6 inches and each layer of aggregate material course shall be tested and approved by the Soils Engineer prior to the placement of successive layers. The aggregate base material shall be compacted to a minimum relative compaction of 95 percent.

5. AGGREGATE SUBBASE - The aggregate subbase shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate subbase material shall conform to the requirements of Section 25 of the Standard Specifications for Class 2 material. The aggregate subbase material shall be compacted to a minimum relative compaction of 95 percent, and it shall be spread and compacted in accordance with Section 25 of the Standard Specifications. Each layer of aggregate subbase shall be tested and approved by the Soils Engineer prior to the placement of successive layers.

6. ASPHALTIC CONCRETE SURFACING - Asphaltic concrete surfacing shall consist of a mixture of mineral aggregate and paving grade asphalt, mixed at a central mixing plant and spread and compacted on a prepared base in conformity with the lines, grades and dimensions shown on the plans. The viscosity grade of the asphalt shall be PG 64-10. The mineral aggregate shall be Type B, ½ inch maximum size, medium grading and shall conform to the requirements set forth in Section 39 of the Standard Specifications. The drying, proportioning and mixing of the materials shall conform to Section 39.

The prime coat, spreading and compacting equipment and spreading and compacting mixture shall conform to the applicable chapters of Section 39, with the exception that no surface course shall be placed when the atmospheric temperature is below 50° F. The surfacing shall be rolled with a combination of steel wheel and pneumatic rollers, as described in Section 39-6. The surface course shall be placed with an approved self-propelled mechanical spreading and finishing machine.

7. FOG SEAL COAT - The fog seal (mixing type asphaltic emulsion) shall conform to and be applied in accordance with the requirements of Section 37.

KERN COUNTY PSYCHIATRIC HEALTH FACILITY

BAKERSFIELD, CALIFORNIA

BCRA DESIGN
2106 PACIFIC AVENUE, SUITE 300
TACOMA, WA 98402

Hydrology Report (version 1)

Project No.: 31800019.000.
CLIENT REF: P19-132R
Date: 5/22/2020

WSP
10525 Vista Sorrento Parkway, Suite 350
San Diego, California 92121

T: 858-500-4500
wsp.com

TABLE OF CONTENTS

APPENDICES

1 PROJECT SUMMARY

This hydrology report summarizes the results of our hydrologic and hydraulic analysis for the proposed Kern Psychiatric Health Facility project located in Bakersfield, California. Our hydrologic analysis quantitatively compared storm water runoff for both the existing and proposed drainage conditions of the site. Based on the proposed site hydrology, hydraulic analysis was performed to design an onsite storm drain system with sufficient capacity to convey anticipated storm water flows from the site.

1.1 PROPOSED SCOPE OF WORK

We understand that the project will generally consist of a new, secure Psychiatric Health Facility (PHF) building and associated infrastructure. The building area will be approximately 28,000 square feet and support a sixteen-bed, adult PHF and a sixteen-bed minor PHF. The project will generally include the following improvements:

- Building structures and exterior utility pads
- Asphalt concrete (AC) parking lot and Portland Cement concrete (PCC) hardscape pavements
- AC access road encompassing the site perimeter and driveway connections to Workman Street public right of way
- ADA accessible PCC sidewalks
- Site walls and associated security features
- New wet and dry utility connections
- New onsite storm drain system and connection to municipal storm sewer
- Site landscaping

1.2 SITE DESCRIPTION

The project site consists of a total of seven, undeveloped lots which were previously graded as part of a master planning development and is located on Workman Street in the City of Bakersfield, California. It is relatively flat with elevations of between approximately 380 and 385 feet above mean sea level (MSL). The site is bound by undeveloped lots to the north, an existing development to the south, Kern sanitation sewer treatment facility to the west, and both developed and undeveloped lots along the east side of Workman Street.

As part of the master planning development, a dedicated drainage sump is located at the northeast corner of the intersection of Workman Street and Zephyr Lane. Storm water runoff from the lots is discharged to the street via sheet flow, received by the underground storm sewer system through nearby curb inlets, and conveyed to the drainage sump for retention.

2 HYDROLOGIC ANALYSIS

2.1 DESIGN CRITERIA / METHODOLOGY

Storm water runoff for both the existing and proposed site conditions were evaluated using the Rational Method and 100 year, 6 hour storm events. Drainage was evaluated in general conformance to Kern County and City of Bakersfield design guidelines. Topographical information was obtained by Alta Land Surveying, Inc. and used to delineate hydrologic basin boundaries and flow path characteristics. Elevation differentials, length of flow, and other pertinent information were evaluated using AutoCAD Civil 3D 2018 software.

2.2 EXISTING DRAINAGE CONDITION

The existing drainage condition may be considered as a single 4.83 acre basin discharging to curb and gutter along Workman Street. The surface cover at the site is entirely pervious. Runoff from the site is ultimately received by the offsite drainage sump consistent with the master drainage plan. No storm water run-on is anticipated at the site.

The existing hydrologic condition exhibit and results of the hydrologic analysis for the existing drainage condition are presented in Appendix A for reference.

2.3 PROPOSED DRAINAGE CONDITION

The proposed drainage condition can be considered as ten smaller drainage subbasins each with varying ratios of pervious to impervious area. Due to the relatively flat nature of the site, an onsite storm drain system will be required to convey storm water and directly connect to the existing storm sewer beneath Workman Street. Overland flow to the street gutters / curb inlets are not considered feasible without significantly raising the site elevations. The proposed project would result in approximately 2.79 acres of impervious surface (58 percent). No storm water run-on is anticipated at the site.

The proposed hydrologic condition exhibit and results of the hydrologic analysis for the proposed drainage condition are presented in Appendix B for reference.

3 HYDRAULIC ANALYSIS

3.1 DESIGN CRITERIA / METHODOLOGY

Hydraulic capacities were evaluated using Manning's one-dimensional energy equation for open channels with energy losses from friction. The hydraulic calculations were performed within Microsoft Excel software for simplicity.

New storm water conveyance structures were designed in general conformance to Kern County and City of Bakersfield design guidelines. The following drainage standards were established minimum design parameters.

- Closed conduit storm drain systems intended to serve onsite lot development shall be designed for the ten year, 24 hour storm event
- Minimum size of a closed conduit system within the street right of way or intended for public maintenance shall be 18 inches
- The minimum size of closed conduit system outside of the street right of way and intended to be privately maintained shall be 8 inches
- The minimum slope of any closed conduit system shall be 0.001 feet per foot (0.10 percent)
- Manholes shall be provided at all junctions, bends, and at intervals no greater than 300 feet where conduit diameter is less than or equal to 30 inches

3.2 EXISTING MASTER DRAINAG PLAN

The hydraulic capacity of the existing storm water conveyance structures and drainage sump outside of the project limits were not evaluated as part of our study. It is anticipated that the master drainage plan approved by the City of Bakersfield provides sufficient capacity with an appropriate factor of safety to support the proposed project.

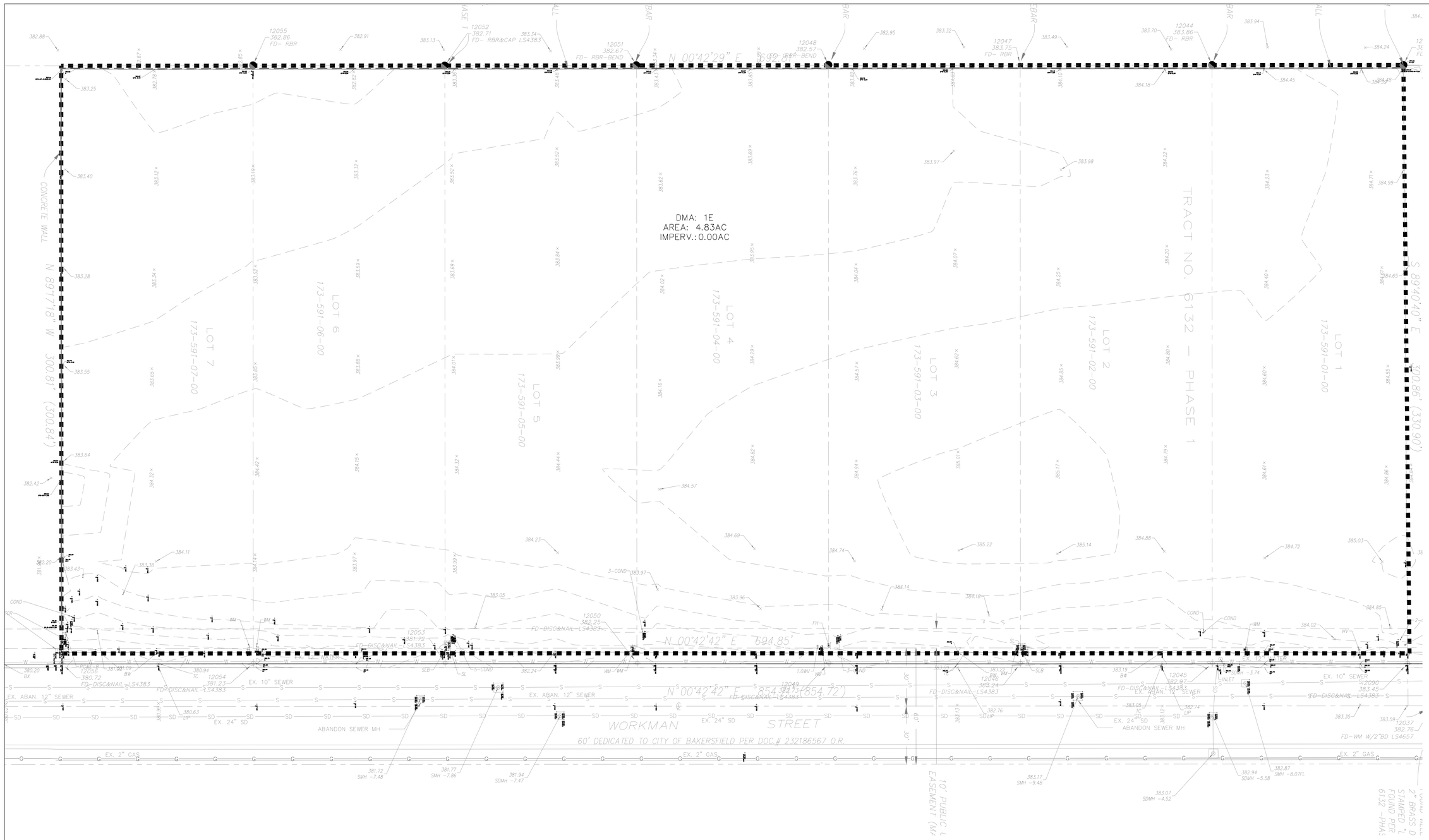
3.3 PROPOSED ONSITE STORM DRAIN SYSTEM

The proposed storm drain system consists of two primary alignments that converge at the southeast corner of the site, upstream of the single connection to the storm sewer within the street right of way. The two primary storm drain alignments extend the full length of the site on the western and eastern limits and flow from north to south. Each alignment includes inlets to capture runoff from each of the respective hydrologic subbasins. Based on our calculations, an 8-inch diameter storm drain pipe provides sufficient hydraulic capacity to convey site drainage to the storm sewer within the right of way. Flow rates within the proposed onsite storm drain system range from between approximately 0.10 and 1.97 cubic feet per second (cfs).

The proposed onsite storm drain system exhibit and complete hydraulic calculations for the proposed project are presented in Appendix B for reference.

APPENDIX A

EXISTING DRAINAGE CONDITION



LEGEND

- PROPOSED PCC HARDSCAPE
- PROPOSED AC PAVEMENT
- PROPOSED BUILDING
- APPROX. LIMITS OF WORK
- PROPOSED STORM MANHOLE (D)
- PROPOSED CATCH BASIN
- PROPOSED STORM PIPE (SD)
- STORM DRAIN FLOW DIRECTION
- PROPOSED UTILITY POC
- DRAINAGE SUBBASIN

1" = 20' scale (20 0 20 40 feet)

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NEW BUILDING CONSTRUCTION
KERN COUNTY PHF
WORKMAN ST
BAKERSFIELD, CA 98003

REVISIONS

DATE
Issue Date

BCRA NO.
19062.00.00

DRAWN BY:

REVIEWED BY: Reviewer

SHEET TITLE
EXISTING DRAINAGE PLAN

SHEET

EXHIBIT

PROJECT STATUS

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KERN COUNTY PSYCHIATRIC HEALTH FACILITY
Existing Drainage Basin Hydrology: 100 Yr-Storm

Drainage Basin #	Total Area (acres)	Pervious Area (acres)	Impervious Area (acres)	Percent Impervious (%)	*Runoff Coefficient, C	Hydraulic Length (ft)	Change in Elevation (ΔH)	Time of Concentration, Tc (min.)	Slope of Basin (%)	$P_{6,}$ 100yr Storm	Intensity, I_{100} (in/hr)	Flow, Q_{100} (cfs)
1E	4.83	4.83	0.00	0%	0.30	300	4.0	22.7	1.33	0.3	0.28	0.40
	4.83	4.83	0.00	0%	0.35						Q Total=	0.40

APPLICABLE EQUATIONS:

Rain Fall Intensity (inches/hour):
$I = 7.44 * P_6 * T_C^{-0.645}$

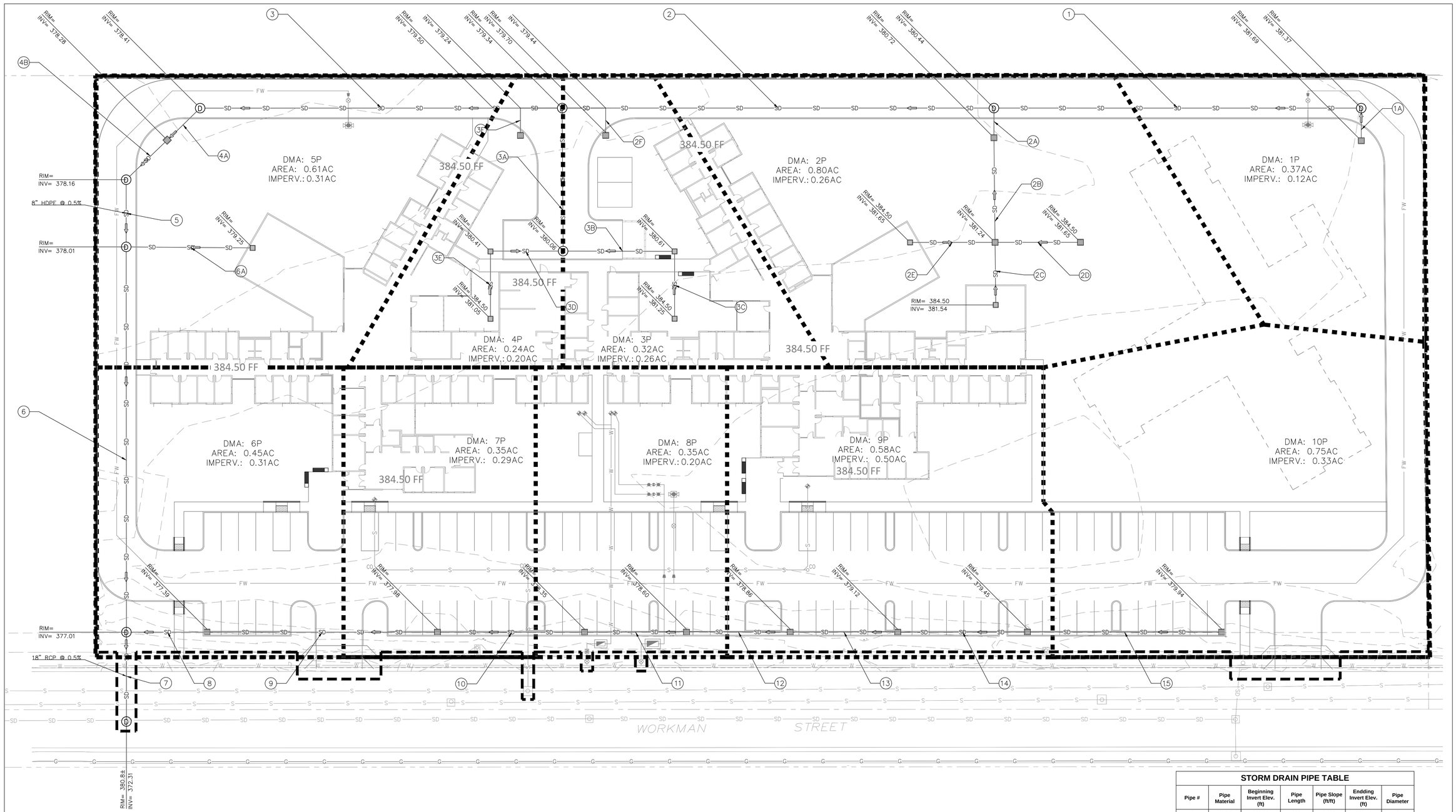
I= 0.277

Expected Runoff/Flow from Drainage Basin (cfs):
Q=C*I*A

Time of Concentration:
Minimum allowable T_C= 5.0 minutes
See report text for equation.

APPENDIX B

PROPOSED DRAINAGE CONDITION & HYDRAULIC CALCULATIONS



LEGEND

- PROPOSED PCC HARDSCAPE
- PROPOSED AC PAVEMENT
- PROPOSED BUILDING
- APPROX. LIMITS OF WORK
- PROPOSED STORM MANHOLE (D)
- PROPOSED CATCH BASIN
- PROPOSED STORM PIPE (SD)
- STORM DRAIN FLOW DIRECTION
- PROPOSED UTILITY POC
- DRAINAGE SUBBASIN

1" = 20' scale (20 0 20 40 feet)

STORM DRAIN PIPE TABLE

Pipe #	Pipe Material	Beginning Invert Elev. (ft)	Pipe Length	Pipe Slope (ft/ft)	Endding Invert Elev. (ft)	Pipe Diameter
1	**HDPE**	**381.37**	**186**	**0.005**	**380.44**	**8**
1A	HDPE	381.69	16	0.020	381.37	8
2	**HDPE**	**380.44**	**220**	**0.005**	**379.34**	**8**
2A	HDPE	380.72	14	0.020	380.44	8
2B	HDPE	381.24	52	0.010	380.72	8
2C	HDPE	381.54	30	0.010	381.24	8
2D	HDPE	381.65	41	0.010	381.24	8
2E	HDPE	381.65	41	0.010	381.24	8
2F	HDPE	379.70	13	0.020	379.44	8
3	**HDPE**	**379.34**	**185**	**0.005**	**378.41**	**8**
3A	HDPE	380.06	72	0.010	379.34	8
3B	HDPE	380.61	55	0.010	380.06	8
3C	HDPE	381.25	32	0.020	380.61	8
3D	HDPE	380.41	35	0.010	380.06	8
3E	HDPE	381.05	32	0.020	380.41	8
3F	HDPE	379.24	13	0.020	379.50	8
4A	**HDPE**	**378.41**	**25**	**0.005**	**378.29**	**8**
4B	**HDPE**	**378.29**	**25**	**0.005**	**378.16**	**8**
5	**HDPE**	**378.16**	**30**	**0.005**	**378.01**	**8**
6	**HDPE**	**378.01**	**200**	**0.005**	**377.01**	**8**
6A	HDPE	378.01	62	0.020	379.25	8
7	**RCP**	**377.01**	**46**	**0.102**	**372.31**	**8**
8	HDPE	377.39	38	0.010	377.01	8
9	HDPE	377.98	117	0.005	377.39	8
10	HDPE	378.35	74	0.005	377.98	8
11	HDPE	378.60	51	0.005	378.35	8
12	HDPE	378.86	51	0.005	378.60	8
13	HDPE	379.12	53	0.005	378.86	8
14	HDPE	379.45	65	0.005	379.12	8
15	HDPE	379.94	98	0.005	379.45	8

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REVISIONS

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Issue Date
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19062.00.00
DRAWN BY:
REVIEWED BY: Reviewer
SHEET TITLE
PROPOSED DRAINAGE PLAN

SHEET

EXHIBIT

PROJECT STATUS

24x42 4/9/2020 1:45:14 PM

KERN COUNTY PSYCHIATRIC HEALTH FACILITY
Proposed Drainage Basin Hydrology: 100 Yr-Storm

Drainage Basin #	Total Area (acres)	Pervious Area (acres)	Impervious Area (acres)	Percent Impervious (%)	*Runoff Coefficient, C	Hydraulic Length (ft)	Change in Elevation (ΔH)	Time of Concentration, Tc (min.)	Slope of Basin (%)	$P_{6,}$ 100-yr Storm	Intensity, I_{100} (in/hr)	Flow, Q_{100} (cfs)
1P	0.37	0.25	0.12	32%	0.49	100	2.5	8.1	2.50	0.277	0.54	0.10
2P	0.80	0.54	0.26	33%	0.50	128	2.5	9.8	1.95	0.277	0.47	0.19
3P	0.32	0.07	0.26	79%	0.78	67	2.5	5.0	3.73	0.277	0.73	0.18
4P	0.24	0.04	0.20	85%	0.81	60	2.5	5.0	4.17	0.277	0.73	0.14
5P	0.61	0.30	0.31	51%	0.60	154	2.5	9.4	1.62	0.277	0.48	0.18
6P	0.45	0.13	0.31	70%	0.72	117	2.5	5.8	2.14	0.277	0.66	0.21
7P	0.35	0.06	0.29	83%	0.80	78	2.5	5.0	3.21	0.277	0.73	0.20
8P	0.35	0.15	0.20	57%	0.64	117	2.5	6.9	2.14	0.277	0.59	0.13
9P	0.58	0.08	0.50	87%	0.82	104	2.5	5.0	2.40	0.277	0.73	0.35
10P	0.75	0.41	0.33	45%	0.57	78	2.5	5.8	3.21	0.277	0.67	0.28
	4.82	2.03	2.79	58%	0.65						Q total=	1.97

APPLICABLE EQUATIONS:

Rain Fall Intensity (inches/hour):

$I = 7.44 * P_6 * T_C \text{^} -0.645$

P_6	0.277

Expected Runoff/Flow from Drainage Basin (cfs):

Q=C*I*A

Time of Concentration:

Minimum allowable T_C= 5.0 minutes

See Report Text for Equation.

KERN COUNTY PSYCHIATRIC HEALTH FACILITY
Storm Drain Hydraulic Calculations

Pipe #	Pipe Material	Manning's Coefficient for Pipe Material, η	Contributing Drainage Basins	Total Area (acres)	Total Flow, Q_{100}(cfs)	Beginning Invert Elev. (ft)	Pipe Length	Pipe Slope (ft/ft)	Endding Invert Elev. (ft)	Pipe Diameter	Q_{CAP} (cfs)	V_{MAX} (ft/sec)	T_C Pipe (min)
1	**HDPE**	**0.010**	**1**	**0.37**	**0.10**	**381.37**	**186**	**0.005**	**380.44**	**8**	**1.10**	**3.16**	**0.98**
1A	HDPE	0.010	1	0.37	0.10	381.69	16	0.020	381.37	8	2.21	6.33	0.04
2	**HDPE**	**0.010**	**1,2**	**1.18**	**0.29**	**380.44**	**220**	**0.005**	**379.34**	**8**	**1.10**	**3.16**	**1.16**
2A	HDPE	0.010	2	0.80	0.19	380.72	14	0.020	380.44	8	2.21	6.33	0.04
2B	HDPE	0.010	2	0.80	0.19	381.24	52	0.010	380.72	8	1.56	4.47	0.19
2C	HDPE	0.010	2	0.80	0.19	381.54	30	0.010	381.24	8	1.56	4.47	0.11
2D	HDPE	0.010	2	0.80	0.19	381.65	41	0.010	381.24	8	1.56	4.47	0.15
2E	HDPE	0.010	2	0.80	0.19	381.65	41	0.010	381.24	8	1.56	4.47	0.15
2F	HDPE	0.010	3	0.80	0.19	379.70	13	0.020	379.44	8	2.21	6.33	0.03
3	**HDPE**	**0.010**	**1,2,3,4**	**1.74**	**0.61**	**379.34**	**185**	**0.005**	**378.41**	**8**	**1.10**	**3.16**	**0.97**
3A	HDPE	0.010	3,4	0.56	0.32	380.06	72	0.010	379.34	8	1.56	4.47	0.27
3B	HDPE	0.010	3	0.32	0.18	380.61	55	0.010	380.06	8	1.56	4.47	0.20
3C	HDPE	0.010	3	0.32	0.18	381.25	32	0.020	380.61	8	2.21	6.33	0.08
3D	HDPE	0.010	4	0.24	0.14	380.41	35	0.010	380.06	8	1.56	4.47	0.13
3E	HDPE	0.010	4	0.24	0.14	381.05	32	0.020	380.41	8	2.21	6.33	0.08
3F	HDPE	0.010	4	0.24	0.14	379.24	13	0.020	379.50	8	2.21	6.33	0.03
4A	**HDPE**	**0.010**	**1,2,3,4,5**	**2.35**	**0.79**	**378.41**	**25**	**0.005**	**378.29**	**8**	**1.10**	**3.16**	**0.13**
4B	**HDPE**	**0.010**	**1,2,3,4,5**	**2.35**	**0.79**	**378.29**	**25**	**0.005**	**378.16**	**8**	**1.10**	**3.16**	**0.13**
5	**HDPE**	**0.010**	**1,2,3,4,5**	**0.61**	**0.18**	**378.16**	**30**	**0.005**	**378.01**	**8**	**1.10**	**3.16**	**0.16**
6	**HDPE**	**0.010**	**1,2,3,4,5,6**	**2.79**	**1.00**	**378.01**	**200**	**0.005**	**377.01**	**8**	**1.10**	**3.16**	**1.05**
6A	HDPE	0.010	5	0.61	0.18	378.01	62	0.020	379.25	8	2.21	6.33	0.16
7 (POC)	**RCP**	**0.013**	**1,2,3,4,5,6,7,8,9,10**	**4.82**	**1.97**	**377.01**	**46**	**0.102**	**372.31**	**18**	**33.45**	**18.94**	**0.04**
8	HDPE	0.010	6,7,8,9,10	2.47	1.18	377.39	38	0.010	377.01	8	1.56	4.47	0.14
9	HDPE	0.010	7,8,9,10	2.02	0.96	377.98	117	0.005	377.39	8	1.10	3.16	0.62
10	HDPE	0.010	8,9,10	1.68	0.76	378.35	74	0.005	377.98	8	1.10	3.16	0.39
11	HDPE	0.010	8,9,10	1.68	0.76	378.60	51	0.005	378.35	8	1.10	3.16	0.27
12	HDPE	0.010	9,10	1.33	0.63	378.86	51	0.005	378.60	8	1.10	3.16	0.27
13	HDPE	0.010	9,10	1.33	0.63	379.12	53	0.005	378.86	8	1.10	3.16	0.28
14	HDPE	0.010	9,10	1.33	0.63	379.45	65	0.005	379.12	8	1.10	3.16	0.34
15	HDPE	0.010	10	0.75	0.28	379.94	98	0.005	379.45	8	1.10	3.16	0.52

DOCUMENT 00 3132

GEOTECHNICAL DATA AND EXISTING CONDITIONS

ARTICLE 1 – REPORT AND INFORMATION

1.01 Existence of Reports and Utility Surveys

A. Owner, its consultants, and prior contractors may have collected documents providing a general description of the Site and conditions of the Work. These documents may consist of geotechnical reports for and around the Site, contracts, contract specifications, tenant improvement contracts, as-built drawings, and utility drawings. These reports, documents and other information are not part of the Contract Documents and do not show new work to be constructed, but rather depict existing conditions that Design-Build Entity ("DBE") will have to address as part of its construction planning and operations. Available reports include but are not limited to the following:

1. **Kern County BHRS Psychiatric Health Facility – Geotechnical Investigation, dated June 10, 2020**

    a. Geotechnical Engineering Investigation, Proposed Psychiatric Health Facility, Workman Street and Zephyr Lane, Bakersfield, Kern County, California by Krazan & Associates, Inc. (attached in Section 00 3100).

2. **Kern County BHRS Psychiatric Health Facility – Hydrology Report, dated May 22, 2020**

    a. Hydrology Report (version 1) by WSP (attached in Section 00 3100)

1.02 Inspection of Reports

A. DBE may inspect geotechnical reports and information regarding existing conditions at the Site. These documents are attached in Section 00 3100 (Available Project Information) and are available for review at the Owner Office located at 1115 Truxtun Ave., 3rd Floor, Bakersfield, CA 93308, and copies may be obtained from the Owner Office for the cost of reproduction and handling upon DBE's payment for the costs. These reports, documents and other information, are not part of the Contract Documents. Nevertheless, DBE accepts full responsibility for reviewing, knowing and understanding the contents of all of these materials.

1.03 Inclusion In Project Manual

A. Geotechnical reports may be included in the Project Manual and information regarding existing conditions will also be included in the Project Manual, but neither shall be considered part of the Contract Documents, but rather "for information only."

1.04 Available Documentation

A. DBE acknowledges that the following documentation has been made available for DBE's review by Owner for this Contract:

1. See Document 00 3100 (Available Project Information).

ARTICLE 2 – USE OF INFORMATION ON EXISTING CONDITIONS AND REQUIRED PRE-CONTRACTING INVESTIGATIONS

2.01 DBE's attention is directed to the Contract Documents including, but not limited to, Document 00 7253 (General Conditions), and also to the Division 01 Specifications (e.g., Section 01 1100 (Summary of Work)).

ARTICLE 3 – ACCESS TO SITE FOR INVESTIGATIONS

3.01 Before contracting, Owner will provide DBE access to the Site to conduct such examinations, investigations, explorations, tests, and studies, as DBE deems necessary. DBE must fill all holes and clean up and restore the Site to its former conditions upon completion of such explorations, investigations, tests, and studies.

3.02 Investigations may be performed only under the provisions of Document 00 2100 (Access, Indemnity and Release Agreement) and Document 00 7253 (General Conditions) including, but not limited to, proof of insurance and obligation to indemnify against claims arising from such investigation work. DBE shall supply all equipment required to perform any investigations as it deems necessary. Owner has the right to limit the number of pieces of machinery operating at one time due to safety concerns.

END OF DOCUMENT

DOCUMENT 00 4200

PROPOSAL FORM

Owner will receive sealed Proposals at the Kern County Administrative Office, General Services – Construction Division, 1115 Truxtun Ave., 3rd Floor, Bakersfield, CA 93301-4639 on Wednesday, August 26, 2020. Proposals shall be due before 5:00 p.m. as determined by the time and date stamp clock in the General Services Division Third Floor main lobby for the following public work:

KERN COUNTY BHRS PSYCHIATRIC HEALTH FACILITY
BAKERSFIELD, CALIFORNIA

TO THE COUNTY OF KERN: _____

THIS PROPOSAL IS SUBMITTED BY: _____

1.01 Submission of Proposal. The undersigned Design-Build Entity proposes and agrees, if this Proposal is accepted, to enter into an agreement with the COUNTY OF KERN, a public entity ("**Owner**") in the form included in the Contract Documents, Document 00 5200 (Agreement), to perform and furnish the Work specified of the Contract Documents and this Proposal. This Proposal consists of this Document 00 4200 and the following documents:

Date	Description
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

1.02 Documents Comprising Proposal. This Proposal consists of this Proposal Form and documents required identified in Document 00 1119 (Request for Proposals), submitted herewith.

1.03 Time Period for Acceptance of Proposal. This Proposal will remain subject to acceptance for sixty (60) calendar days after the day of Proposal opening, unless a greater period is authorized by the Board of Supervisors, and may not be withdrawn during that time period. If this Proposal is accepted, Design-Build Entity will sign and submit the Agreement, bonds and other documents required by these Contract Documents.

1.04 In Submitting this Proposal, Proposer Represents:

a. Proposer has examined all of the Contract Documents and the following Addenda (receipt of all of which is hereby acknowledged).

Addendum Number	Addendum Date	Signature of Proposer

b. Proposer acknowledges receipt of Pre-Proposal Conference minutes, if any.

c. Proposer has visited the Site and performed all tasks, research, investigation, reviews, examinations, and analysis and given notices, regarding the Project and the Site, as set forth in Document 00 5200 (Agreement), Article 5 and Document 00 7253 (General Conditions), Article 3.

d. Proposer has given the County prompt written notice of all conflicts, errors, ambiguities, or discrepancies that it has discovered in or among the Bridging Documents or other Proposal Documents and as-built drawings and actual conditions and the written resolution thereof through Addenda issued by the County is acceptable to Design-Build Entity.

e. Proposer acknowledges that different methods will be used determine (1) the number of points that Proposer may receive on account of this Proposal; and (2) the exact scope of Work of Contract Documents and associated Contract Sum. Proposer acknowledges that Proposer's ultimate scope of Work and associated Contract Sum (if it is awarded the Contract) may be different than any amount or specific combination of Work indicated in this Proposal.

1.05 Schedule of Proposal Prices: Based on the foregoing, Proposer proposes and agrees to fully perform the Work within the time stated and in strict accordance with the Contract Documents for the following sums of money listed in the following Schedule of Proposal Prices.

All Proposal items, including lump sums, must be filled in completely. Certain Proposal items are described in Section 01 1100 (Summary of Work); others are described in Bridging Documents or elsewhere in Contract Documents. Quote in figures only, unless words are specifically requested.

PART I — Base Project

ITEM	DESCRIPTION	TOTAL
1.	All Work of Contract Documents (including without limitation Bridging Documents)	$
Total Base Price	**Sum of Proposal**	$

Total Base Price (in words): _____
(Words)

PART II — Base Project Plus Enhancements

ITEM	ENHANCEMENTS	PRICE	TOTAL PROPOSAL ITEMS 1&2
2.	Additive Enhancements (Voluntary) (see Schedule 1-A)	$	[redacted]
3.	Voluntary Enhancements (see Schedule 1-B)		
Total Base Project Plus Enhancements Price	**Sum of Proposal Items 1 & 2.** *Total must be equal to or less than the Stipulated Sum of $21,200,000.* • *The Proposer whose Base Project Plus Additive Enhancements Price is within the Stipulated Sum and is determined by Owner to be the overall Project that would provide the greatest value to the County will receive the most points.*	[redacted]	

PART III — Other Alternates

ITEM	OTHER ALTERNATES	PRICE
4.	Contractor Controlled Insurance Program (CCIP) Option (see Document 00 7316, Exhibit I, Article 2)	$
5.		$
6.		$

PART IV — Contract Modification Rates for Architect / Engineers (per Section 01 2600 Paragraph 2.02.B.4.):

ITEM	DESCRIPTION	TOTAL
A.	Hourly Rate for Architect	$
B.	Hourly Rate for Engineer	$

1.06 Owner Right to Reject this Proposal. The undersigned understands that Owner reserves the right to reject this Proposal, or all Proposals, in its sole discretion.

1.07 Acceptance of this Proposal. If written notice of the acceptance of this Proposal, referred to as the Notice of Award, is mailed or delivered to the undersigned within the time described in the documents listed in Document 00 1119 (Request for Proposals) as a condition of award, all within the time and in the manner specified above and in these Contract Documents. Notice of Award or request for additional information may be addressed to the undersigned at the address set forth below.

1.08 Proposal Security. The undersigned encloses a certified check or cashier's check of a responsible bank in the United States, or a corporate surety bond furnished by a surety authorized to do a surety business in the State of California, in the amount of not less than 10% of the proposed Contract Sum (i.e., $2,120,000.00), payable to the County of Kern.

1.09 Principals. The names of all persons interested in the foregoing Proposal as principals are:

(IMPORTANT NOTICE: If Design-Build Entity or other interested person (including any partner or joint venturer of any partnership or joint venture Design-Build Entity, respectively) is a corporation, give the legal name of corporation, state where incorporated, and names of president and secretary thereof; if a partnership, give name of the firm and names of all individual co-partners composing the firm; if Design-Build Entity or other interested person is an individual, give first and last names in full).

_____

_____

Licensed in accordance with an act for the registration of Contractors, and with license number:

_____

1.10 This Proposal is subject to the terms and conditions in Document 00 1119 (Request for Proposals), and is submitted by:

_____
[Name of Design-Build Entity]

By: _____

Title: _____

NOTE: If the Design-Build Entity is a corporation, set forth the legal name of the corporation together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation. If the Design-Build Entity is a partnership, set forth the name of the firm together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership. All signer(s) represent and warrant that they are authorized to sign this Proposal on behalf of Design-Build Entity.

Business Address: _____

Telephone Number: _____

Fax Number: _____

E-Mail Address: _____

Date of Proposal: _____

END OF DOCUMENT

TABLE OF ADDITIVE ENHANCEMENTS (VOLUNTARY)

Additive Enhancements (Voluntary) (1)	Included in Proposal Item 2 (Yes or No) (2)	Price	County Decision Point Date (3)
a. Provide galvanized, painted 12 foot tall security steel frame fabrications with non-climbable screening and integrated canopies		$	
b. Art Budget (If selected, use the amount of $38,000.00 for the price)		$	

Notes: (1) See Document 00 1119 Request for Proposals), para. 3.02.F. A detailed description of each Additive Enhancement (Voluntary) is included in the Technical Proposal Submission of the Proposal.

(2) Any Additive Enhancement (Voluntary) which is not included in Work at time of award becomes an Alternate, at price indicated.

(3) See Section 01 1100 (Summary of Work) para. 1.04 and Document 00 5200 (Agreement) para. 1.03.

Schedule 1-B

TABLE OF VOLUNTARY ENHANCEMENTS/ALTERNATES

Voluntary Enhancements/Alternates (1B)	Included in Proposal Item 5 (Yes or No) (2B)	Price	County Decision Point Date (3B)
		$	
		$	
		$	
		$	
		$	
		$	
		$	
		$	
[Add additional sheets if necessary]			

Notes: (1B) See Document 00 1119 Request for Proposals), para. 3.02.F. A general description of Voluntary Alternates and Alternate Technical Concepts are included in the Technical Proposal Submission of the Proposal.

(2B) Any Voluntary Enhancement or Alternate Technical Concept which is not included in Work at time of award becomes an Alternate, at price indicated.

(3B) See Section 01 1100 (Summary of Work) para. 1.03 and Document 00 5200 (Agreement) para. 1.03.

DOCUMENT 00 4316

BOND ACCOMPANYING PROPOSAL

KNOW ALL BY THESE PRESENTS:

That the undersigned

_____

(Name of Contractor)

as Principal and the undersigned as Surety are held and firmly bound unto Owner, the County of Kern, as obligee, in the penal sum of TWO MILLION ONE-HUNDRED TWENTY THOUSAND Dollars **($2,120,000.00)** lawful money of the United States of America, for the payment of which, well and truly to be made, we bind ourselves, our successors, executors, administrators, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said Principal is submitting a Proposal for the Kern County BHRS Psychiatric Health Facility.

THE CONDITION OF THIS OBLIGATION IS SUCH that if the Proposal submitted by the said Principal be accepted and the Contract be awarded to said Principal and said Principal shall within the required periods enter into the Contract so awarded, execute Document 00 5200 (Agreement) and provide the required Construction Performance Bond, Construction Labor and Material Payment Bond, insurance certificates, Guarantee, and all other endorsements, forms, and documents required under Document 00 1119 (Request for Proposals), then this obligation shall be void, otherwise to remain in full force and effect.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument this _____ day of _____, 20___**.**
(Month)

(Corporate Seal) By _____
Principal

By _____
Surety

(Corporate Seal) By _____
Attorney in Fact

END OF DOCUMENT

DOCUMENT 00 4330

SUBCONTRACTORS LIST

ARTICLE I – INITIAL SUBCONTRACTOR PROCUREMENT

A. Design-Build Entity shall use this sheet to list those Subcontractors who shall perform Proposal Work that are required to be listed by Public Contract Code Section 20133 and the “Subletting and Subcontracting Fair Practices Act" set forth in Public Contract Code Section 4100, et seq.

B. In accordance with Document 00 7316 (Supplementary Conditions – Insurance and Indemnification), Exhibit 1, paragraph 1.7.j, all Subcontractors (unless an Excluded Party) must have an Experience Modification Rate (EMR) of 1.25 or less.

Full Name, Address and Telephone Number of Subcontractor:	Type of Work to be Performed:	Subcontractor’s License No.

(Attach additional sheets if necessary)

ARTICLE II – SUBSEQUENT SUBCONTRACTOR PROCUREMENT

A. All subcontractors that were not listed above by the Design-Build Entity in accordance with Public Contract Code Section 20133, clause (i) of subparagraph (A) of paragraph (3) of subdivision (d) shall be awarded by the Design-Build Entity in accordance with the design-build process set forth by the county in the design-build package. All subcontractors bidding on contracts pursuant to this section shall be afforded the protections of the "Subletting and Subcontracting Fair Practices Act" contained in Chapter 4 (commencing with Section 4100) of Part 1 of the Public Contract Code. The design-build entity shall do both of the following:

(1) Provide public notice of the availability of work to be subcontracted in accordance with the publication requirements applicable to the competitive bidding process of Owner.

(2) Provide a fixed date and time on which the subcontracted work will be awarded in accordance with the procedure established pursuant to this section.

B. Lists of subcontractors, bidders, and bid awards relating to the project shall be submitted by the Design-Build Entity to Owner within 14 days of the award. These documents are deemed to be public records and shall be available for public inspection pursuant to this chapter and Article 1 (commencing with Section 6250) of Chapter 3.5 of Division 7 of the Government Code.

END OF DOCUMENT

DOCUMENT 00 4516

DESIGN-BUILD ENTITY CERTIFICATIONS

TO BE EXECUTED BY DESIGN-BUILD ENTITY AND SUBMITTED WITH PROPOSAL

The undersigned Design-Build Entity certifies to Owner as set forth in sections 1 through 12 below.

1. Certification Regarding Key Personnel

The undersigned Design-Build Entity certifies and affirms to the County of Kern, a public entity ("Owner"), that if awarded this Contract, Design-Build Entity will prosecute the work with the key personnel identified in its Pre-Qualification Process submittals and acknowledges that if there are any substitutions to said key personnel that are not approved by Owner prior to submission of Proposal, they may result in (a) Owner's determination that this Proposal is non-responsive, and / or (b) the imposition of Liquidated Damages.

2. Statement of Convictions

By my signature hereunder, I hereby swear, under penalty of perjury, that no more than one final, unappealable finding of contempt of court by a Federal Court has been issued against Proposer within the past two years because of failure to comply with an order of a Federal Court or to comply with an order of the National Labor Relations Board.

3. Certification of Worker's Compensation Insurance

By my signature hereunder, as the Design-Build Entity, I certify that I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of the work of this Contract.

4. Certification of Prevailing Wage Rates, Records, and Apprentices

By my signature hereunder, as the Design-Build Entity, I certify that I am aware of and shall comply with the wage, recordkeeping, reporting and notice requirements of the Davis-Bacon Act, which requires that wages and benefits be paid in accordance with the rates published in the "General Wage Determinations issued under the Davis-Bacon and Related Act." The State of California Department of Industrial Relations has determined the general prevailing wage rates in this County, copies of which are on file in the General Services Division of the County Administrative Office. Where Davis-Bacon Act wages and benefits differ from the California amount, the higher rate shall prevail. I further certify that I am aware of and shall comply with California Labor Code §1777.5, regarding the employment and training of apprentices and that it is my responsibility to ensure compliance by any and all subcontractors performing work under this Contract.

5. Certification of Compliance with Public Works Chapter of Labor Code

By my signature hereunder, as the Design-Build Entity, I certify that I am aware of Sections 1777.1 and 1777.7 of the California Labor Code and Design-Build Entity and Subcontractors are eligible to bid and work on public works projects.

6. Certification of Adequacy of Contract Amount

By my signature hereunder, as the Design-Build Entity, pursuant to Labor Code Section 2810(a), I certify that, if awarded the Contract based on the undersigned's Proposal, the Contract will include funds sufficient to allow the Design-Build Entity to comply with all applicable local, state, and federal laws or regulations governing the labor or services to be provided. I understand that Owner will be relying on this certification if it awards the Contract to the undersigned.

7. Certification of Acceptability of Contract Documents

By my signature hereunder, as the Design-Build Entity, I certify that Proposer acknowledges that Owner has already transmitted the Contract Documents in draft form to state officials and has obtained prior state approval of the acceptability of the Contract Documents. Accordingly, Proposer has carefully reviewed the Contract Documents and agrees to sign the Agreement form and provide the other required forms that have been included within the Contract Documents in substantially the same form as drafted without seeking major revisions following selection of the Design-Build Entity to whom the Notice of Award will be directed.

8. Certification of Skilled Labor Force Availability

By my signature hereunder, as the Design-Build Entity, I certify that the Proposer is a party to an agreement with a registered apprenticeship program, approved by the California Apprenticeship Council, which has graduated apprentices in each of the preceding five years (provided that this graduation requirement shall not apply to programs providing apprenticeship training for any craft that has been deemed by the Department of Labor and the Department of Industrial Relations to be an apprenticeable craft in the five years prior to enactment of Public Contract Code Section 20133), and that attached hereto is a copy of that agreement, which is true and correct and in full force and effect.

9. Certification of Acceptable Safety Record

[Please check and / or complete one of the following]

_____By my signature hereunder, as the Design-Build Entity, I certify that the Proposer's experience modification rate for the most recent three-year period is an average of 1.00 or less, and its average Total Recordable Injury/Illness rate and average lost work rate for the most recent three-year period does not exceed the applicable statistical standards for its business category or the Proposer is a party to an alternative dispute resolution system as provided for in Section 3201.5 of the Labor Code.

_____By my signature hereunder, as the Design-Build Entity, except as provided in Appendix _, consisting of _____ pages, attached hereto, I certify that the Proposer's experience modification rate for the most recent three-year period is an average of 1.00 or less, and its average Total Recordable Injury/Illness rate and average lost work rate for the most recent three-year period does not exceed the applicable statistical standards for its business category or the Proposer is a party to an alternative dispute resolution system as provided for in Section 3201.5 of the Labor Code . Proposer must attach an Appendix, identifying and explaining all exceptions to this certification, if this item is checked.

10. Certifications Regarding Selection Process

[Please check and / or complete one of the following]

_____The undersigned confirms it has no objections or protests to any Design-Build Entity selection procedure, process or requirement, or any other any aspect of the Design-Build Entity selection process, and does not object to any aspect of the Design-Build Entity selection process.

_____Attached as Appendix _, consisting of _____ pages, is a detailed description of all objections and protests the undersigned has regarding any aspect of the Design-Build Entity selection process. Proposer must attach an Appendix if this item is checked.

11. Certification Regarding Material Changes

[Please check and / or complete one of the following]

_____The undersigned certifies that all information it submitted to Owner in connection with the Pre-Qualification Process, including without limitation any modifications, amendments or supplements thereto ("Pre-Qualification Information") remains true and correct in all material respects as of the date of submitting its Proposal.

_____Except as provided on the Material Changes List, submitted as provided in Document 00 1119 (Request for Proposals), the undersigned certifies that all information it submitted to Owner in connection with the Pre-Qualification Process, including without limitation any modifications, amendments or supplements thereto ("Pre-Qualification Information") remains true and correct in all material respects as of the date of submitting its Proposal. Proposer must include a Material Changes List with its Proposal if this item is checked.

12. Definitions

All capitalized terms not otherwise defined in these Design-Build Entity Certifications shall have the meanings provided in Document 00 1119 (Request for Proposals) or Section 01 4200 (References and Definitions).

DESIGN-BUILD ENTITY: _____
(Name of Design-Build Entity)

Date: _____, **[20]** By:_____
(Signature)

Name:_____
(Print Name)

Its:_____
(Title)

END OF DOCUMENT

DOCUMENT 00 4520

NON-COLLUSION DECLARATION
TO BE EXECUTED BY PROPOSER AND SUBMITTED WITH PROPOSAL
(PUBLIC CONTRACT CODE §7106)

PROJECT TITLE: KERN COUNTY BHRS PSYCHIATRIC HEALTH FACILITY

The undersigned declares:

I am the _____ of _____
(Office of Affiant) (Name of Proposer)
the party making the foregoing Proposal.

The Proposal is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The Proposal is genuine and not collusive or sham. The Proposer has not directly or indirectly induced or solicited any other proposer to put in a false or sham Proposal. The Proposer has not directly or indirectly colluded, conspired, connived or agreed with any proposer or anyone else to put in a sham Proposal, or to refrain from proposing. The Proposer has not in any manner, directly or indirectly, sought by agreement, communication or conference with anyone to fix the Proposal price of Proposer or any other proposer, or to fix any overhead, profit or cost element of the Proposal price, or of that of any other proposer. All statements contained in the Proposal are true. The Proposer has not, directly or indirectly, submitted his or her price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, Proposal depository, or to any member or agent thereof to effectuate a collusive or sham Proposal, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a Proposer that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the Proposer.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____, at _____, _____.
(Date)
(City) (State)

_____
(Name of Proposer)

_____
(Signature of Principal)

NOTE: If Proposer is a partnership or a joint venture, this declaration must be signed and sworn to by every member of the partnership or venture.

NOTE: If Proposer [including any partner or venturer of a partnership or joint venture] is a corporation, this declaration must be signed by the Chairman, President, or Vice President and by the Secretary, Assistant Secretary, Chief Financial Officer, or Assistant Treasurer.

NOTE: If Proposer's declaration on this form is made outside the State of California, the official position of the person making such declaration shall be certified according to law.

END OF DOCUMENT

DOCUMENT 00 4530

IRAN CONTRACTING ACT CERTIFICATION
(Public Contract Code Sections 2200 et seq.)

Project Name: Kern County BHRS Psychiatric Health Facility

As required by California Public Contract Code section 2204, Proposer certifies that the option checked below relating to Proposer's status in regard to the Iran Contracting Act of 2010 (Public Contract Code sections 2200 *et seq.*) is true and correct:

☐ Proposer is not:

(i) identified on the current list of persons and entities engaging in investment activities in Iran prepared by the California Department of General Services in accordance with subdivision (b) of Public Contract Code section 2203; or

(ii) a financial institution that extends, for 45 days or more, credit in the amount of $20,000,000 or more to any other person or entity identified on the current list of persons and entities engaging in investment activities in Iran prepared by the California Department of General Services in accordance with subdivision (b) of Public Contract Code section 2203, if that person or entity uses or will use the credit to provide goods or services in the energy sector in Iran.

☐ Kern County has exempted Proposer from the requirements of the Iran Contracting Act of 2010 after making a public finding that, absent the exemption, Kern County will be unable to obtain the goods and / or services to be provided pursuant to the Contract.

☐ The amount of the Contract payable to Proposer for the Project is less than $1,000,000.

CERTIFICATION

I, the official named below, CERTIFY UNDER PENALTY OF PERJURY, that I am duly authorized to legally bind the Proposer to the above selected option. This certification is made under the laws of the State of California.

Design-Build Entity

Firm	Signed
Date	Name/Title

Note: In accordance with Public Contract Code section 2205, false certification of this form shall be reported to the California Attorney General and may result in civil penalties equal to the greater of $250,000 or twice the Contract amount, termination of the Contract and/or ineligibility to bid on contracts for three years.

END OF DOCUMENT

DOCUMENT 00 5050

NOTICE OF INTENT TO AWARD

DATE ISSUED: _____, 20___

PROJECT NUMBER: _____

PROJECT TITLE: COUNTY OF KERN
KERN COUNTY BHRS PSYCHIATRIC HEALTH FACILITY
at 616-806 WORKMAN ST., BAKERSFIELD, CA 93307

_____, the _____ of

Owner intends to recommend to its Board of Supervisors the Conditional Award of the above-

referenced Project to _____.

(Name of Design-Build Entity)

COUNTY OF KERN

By: _____

_____
(Print name)

Title: _____

Date: _____

END OF DOCUMENT

DOCUMENT 00 5100

NOTICE OF CONDITIONAL AWARD

Dated _____

TO: _____ ("Design-Build Entity")

ADDRESS: _____

PROJECT NO.: _____

CONTRACT FOR: **COUNTY OF KERN**
KERN COUNTY BHRS PSYCHIATRIC HEALTH FACILITY
at 616-806 WORKMAN ST., BAKERSFIELD, CA 93307

1. The Contract Sum of your Contract (including the Additive Enhancements (Voluntary) identified below) is _____ Dollars ($_____).

2. The Work of your Contract includes the following Enhancements in addition to the Base Project:

    a. Additive Enhancements (Voluntary)

Enhancement Identification Number	Additive Enhancement (Voluntary) Description	Enhancement Price
		$
		$
		$
		$

3. As required by Public Contract Code Section 20133(d)(4)(B)(iv), the second and third-ranked Design-Build Entities are _____and _____.

4. Copies of the proposed Contract Documents listed below accompany this Notice of Conditional Award.

5. You must comply with the following conditions precedent by 5:00 p.m. of the third business Day following the date of this Notice of Conditional Award, that is, by **[Day of the Week, Month Day, 202__]**:

    a. Deliver to Owner seven fully executed counterparts of Document 00 5200 (Agreement). Each copy of Document 00 5200 (Agreement) must bear your original signature on the signature page and your initials on each page.

b. Deliver to Owner seven original copies of Document 00 6536 (Guaranty), each executed by you.

c. _____.

6. Additionally, you must comply with the following conditions precedent by 5:00 p.m. of the seventh Day following the date this Notice of Conditional Award, that is by **[Day of the Week, Month day, 202__]**:

a. Deliver to Owner three originals of Document 00 6113.13 (Construction Performance Bond), executed by you and your surety.

b. Deliver to Owner three originals of Document 00 6113.16 (Construction Labor and Material Payment Bond), executed by you and your surety.

c. Deliver to Owner an original set of the insurance certificates with endorsements required under Document 00 7316 (Supplementary Conditions – Insurance and Indemnification).

7. Failure to comply with these conditions within the time specified will entitle Owner to consider your Proposal abandoned, to annul this Notice of Award, and to declare your Proposal security forfeited.

8. Within 21 Days after you comply with the conditions in Paragraphs 5 and 6 above, Owner will return to you one fully signed counterpart of Document 00 5200 (Agreement).

9. Upon commencement of the Work, you and each of your Subcontractors shall certify and provide Owner copies of payroll records on forms provided by the Division of Labor Standards Enforcement, in accordance with California Labor Code §1776.

COUNTY OF KERN

BY: _____
(Title)

_____
(Print Name)

ATTEST: _____
Secretary

_____
(Print Name)

AUTHORIZED BY COUNTY RESOLUTION:

NO: _____

ADOPTED: _____, 20___

[Copy of Resolution Attached]

END OF DOCUMENT

DOCUMENT 00 5200

AGREEMENT
(Design-Build AB 900)

THIS AGREEMENT, dated this _____ day of _____, 20___ by and between _____ [Name of Design-Build Entity], whose place of business is located: _____ ("Design-Build Entity"), and the County of Kern ("Owner"), acting under and by virtue of the authority vested in Owner by the laws of the State of California.

PROJECT NUMBER: _____
COUNTY OF KERN
KERN COUNTY BHRS PSYCHIATRIC HEALTH FACILITY at
616-806 WORKMAN ST., BAKERSFIELD, CA 93307

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth, Design-Build Entity and Owner agree as follows:

ARTICLE 1 - SCOPE OF WORK OF THE CONTRACT

1.01 Work of the Contract

A. Design-Build Entity hereby agrees to serve as the stipulated sum Design-Build Entity for the Project identified herein, inclusive of complete planning, design and engineering services, construction management services, complete permitted plan sets, construction services, completion and commissioning services, and turnover of a complete, functional and legally operable Project, in accordance with the Specifications, Drawings, and all other terms and conditions of the Contract Documents ("Work").

B. Without limiting the foregoing, Work specifically includes the following Additive Enhancements (Voluntary):

1. The following Additive Enhancements (Voluntary): _____

C. Without limiting the foregoing, Work specifically includes the following Voluntary Enhancements:

1. The following Voluntary Enhancements: _____

D. Without limiting the foregoing, Work specifically includes the following Deductive Items:

1. The following Deductive Items: _____

E. Without limiting the foregoing, Work specifically includes the following Alternative Technical Concepts:

1. The following Alternative Technical Concepts: _____

1.02 Price for Completion of the Work

A. Owner shall pay Design-Build Entity the following Contract Sum, _____ ($_____) for completion of Work in accordance with Contract Documents (including the Additive Enhancements (Voluntary), Voluntary Enhancements, Deductive Items, and Alternative Technical Concepts identified in paragraphs 1.01B, 1.01C, 1.01D and 1.01E above)

1.03 Alternates

A. At Owner's sole discretion, Work may also include one or more Alternates. To add any Alternate to the Work, Owner must notify Design-Build Entity no later than the applicable County Decision Point Date in Design-Build Entity's Document 00 4200 (Proposal Form). Contract Sum will be adjusted (increased for an additive Alternate, decreased for a deductive Alternate) only by the Proposal Price for the Alternate, and Owner will pay no other amount on account of adding the Alternate to the Work. Addition of any Alternate shall be memorialized by Change Order and (other than any provision regarding payment) subject to all other Contract Documents requirements relating to Change Orders.

ARTICLE 2 - COMMENCEMENT AND COMPLETION OF WORK

2.01 Commencement of Work

A. Design-Build Entity shall commence Work on _____.

B. Owner reserves the right to modify or alter the Commencement Date.

2.02 Completion of Work

A. Design-Build Entity shall achieve Final Completion of the entire Work no later than July 22, 2022.

2.03 Design and Construction Milestones

A. Design-Build Entity shall also complete design and construction of the Project consistent with the following milestones.

1. Substantial Completion by June 14, 2022;

2. Certificate of Beneficial Occupancy of entire Project Recorded by June 30, 2022;

3. Final Completion of entire Project by September 30, 2022.

2.04 Liquidated Damage Amounts

A. Owner and Design-Build Entity recognize that time is of the essence of this Agreement and that Owner will suffer financial loss, if the Work is not completed within the time specified herein, taking into account any extensions thereof allowed in accordance with the Contract Documents.

B. Consistent with terms, conditions, stipulations and limitations in Document 00 7253 (General Conditions) regarding liquidated damages, Design-Build Entity and Owner agree that because of the nature of the Project, it would be impractical or extremely difficult to fix the amount of actual damages incurred by Owner because of a delay in completion of the Work. Accordingly, in the event of delay in completion of the Work, or any Phase or Subproject, Owner and Design-Build Entity agree that Design-Build Entity shall pay Owner as liquidated damages the number of Dollars provided below:

1. As liquidated damages for delay, Design-Build Entity shall pay Owner Two thousand-five hundred dollars ($2,500.00) for each Day that expires after the time specified herein for Design-Build Entity to achieve the Final Completion of the entire Work (paragraph 2.02A above), until achieved.

2.05 Scope of Liquidated Damages

A. Measures of liquidated damages shall apply cumulatively.

B. Limitations and stipulations regarding liquidated damages are set forth in Document 00 7253 (General Conditions).

ARTICLE 3 - PROJECT REPRESENTATIVES AND STAFFING

3.01 Owner’s Project Administrator

A. Owner has designated Geoff Hill as its Project Administrator to act as Owner’s Representative in those matters relating to the Contract Documents that do not require Board of Supervisors approval.

B. To the extent Board of Supervisors approval is not required, Project Administrator shall have authority over various matters pertaining to the Contract Documents and shall have sole authority to modify the Contract Documents on behalf of Owner, to accept work, and to make decisions or actions binding on Owner, and shall have sole signature authority on behalf of Owner. By this clause, Project Administrator is not assigned any rights or obligations that require Board of Supervisors approval.

C. Owner may assign all or part of the Project Administrator’s rights, responsibilities and duties to a Construction Manager, or other Owner Representative.

3.02 Design-Build Entity's Project Manager and Dedicated Staff

A. Design-Build Entity has designated _____ as its Project Manager to act as Design-Build Entity's Representative in all matters relating to the Contract Documents. For the construction phase, the Project Manager shall be resident at the Project Site and shall be devoted solely to the Project. Design-Build Entity may not change the identity of its Project Manager without prior Owner written approval, which approval shall not be unreasonably withheld, provided such replacement has similar or greater experience and qualifications.

B. Design-Build Entity's Proposal provides an organization chart and lists the key personnel previously approved in the Request for Qualification Process Phase 1 Steps 1 and 2 or otherwise (together, "Key Personnel) Design-Build Entity intends to provide to the Project to perform its design, construction and obligations under the Contract Documents, including but not limited to, their position, responsibility, resume and qualifications. Design-Build Entity represents that such staff have the necessary licenses, experience and qualifications to satisfactorily perform the requirements of the Contract Documents and that at all times Design-Build Entity shall maintain such staff or similar staff having all necessary licenses, certifications, experience and skills necessary to perform all obligations of the Contract Documents.

C. Design-Build Entity acknowledges that the quality and qualifications of the Key Personnel were important factors in Owner's selection of Design-Build Entity for the Project. Design-Build Entity and Owner agree that the personal services of the Key Personnel is a material term of the Contract Documents, and substitution or removal or change in role or level of effort, of such Key Personnel would result in damages to the Owner, the measure of which would be impractical or extremely difficult to fix, and in lieu of which Owner and Contractor have agreed to liquidated damages as described below:

   1. Owner may assess and Contractor shall accept liquidated damages in the amount of ***[e.g., three (3) times the gross monthly salary]*** for authorized substitutions of any Key Personnel.

   2. Owner may assess and Contractor shall accept liquidated damages in the amount of ***[e.g., six (6) times the gross monthly salary]*** for unauthorized substitutions of any Key Personnel.

D. Liquidated damages for substitution of Key Personnel shall be deducted from the next applicable Application for Payment or, if insufficient, shall be paid by Design-Build Entity.

E. No liquidated damages shall under be due under this paragraph 3.02 for any substitution required due to death or incapacity of a Key Personnel.

3.03 Bridging Architect

A. BCRA furnished the Bridging Documents (Performance Criteria and Concept Drawings) and shall have the rights assigned to Bridging Architect in the Contract Documents.

ARTICLE 4 - CONTRACT DOCUMENTS

4.01 Contract Documents consist of the following documents, including all changes, Addenda, and Modifications thereto:

Document 00 4200	Proposal Form, attached hereto
Document 00 4330	Subcontractors List and all amendments thereto, as set forth in Public Contract Code Section 20133
Document 00 5050	Notice of Intent to Award
Document 00 5100	Notice of Conditional Award
Document 00 5200	Agreement
Document 00 5201	Bridging Documents & Annex 1
Document 00 5500	Notice to Proceed with Construction
Document 00 5501	Notice to Proceed with Design Services
Document 00 6113.13	Construction Performance Bond
Document 00 6113.16	Construction Labor and Material Payment Bond
Document 00 6325	Substitution Request Form
Document 00 6530	Agreement and Release of Any And All Claims
Document 00 6536	Guaranty
Document 00 7253	General Conditions – Design Build
Document 00 7316	Supplementary Conditions – Insurance and Indemnification
Document 00 7318	Insurance Manual
Document 00 7319	Safety Manual
Document 00 7380	Apprenticeship Program
Document 00 9113	Addenda

Division 01 Sections identified in Document 00 0110 (Table of Contents)

Design-Build Entity's Proposal for County of Kern dated August 26, 2020

Final Construction Documents (following receipt of all approvals required by other Contract Documents), whether listed on Document 00 4330 (Subcontractors List) or otherwise.

4.02 There are no Contract Documents other than those listed above. The Contract Documents may only be amended, modified or supplemented as provided in Document 00 7253 (General Conditions).

ARTICLE 5 - MISCELLANEOUS

5.01 Terms and abbreviations used in this Agreement are defined in Document 00 7253 (General Conditions) and Section 01 4200 (References and Definitions) and will have the meaning indicated therein. Prior to executing this Agreement, Design-Build Entity has performed all required pre-construction investigations required and described in the Contract Documents,

5.02 All notices or demands to Owner or Design-Build Entity under the Contract Documents shall be in writing and directed to the other at the respective addresses identified under each party's signatures below, or by hand delivery or to such other person(s) and

address(es) as a party shall provide to another. Except as otherwise expressly provided herein, notices shall be dispatched by facsimile transmission, overnight delivery by reputable courier service and/or U.S. mail. Except as otherwise expressly provided herein, notices dispatched by facsimile or overnight delivery shall be deemed received on the business day following dispatch. Notices dispatched by U.S. mail shall be deemed received on the third business day following dispatch. Email transmission of PDF images shall be effective only if expressly acknowledged as effective in writing by the receiving party.

5.03 In order to induce Owner to enter into this Agreement, Design-Build Entity represents that it is duly organized, existing and in good standing under applicable state law; is licensed to perform all aspects of the Work; will employ only persons and subcontractors and designers with all required licenses and certifications; that Design-Build Entity is duly qualified to conduct business in the State of California; that Design-Build Entity has duly authorized the execution, delivery and performance of this Agreement, the other Contract Documents and the Work to be performed herein; and that the Contract Documents do not violate or create a default under any instrument, agreement, order or decree binding on Design-Build Entity.

5.04 Design-Build Entity shall not assign any portion of the Contract Documents.

5.05 Should any part, term or provision of this Agreement or any of the Contract Documents, or any document required herein or therein to be executed or delivered, be declared invalid, void or unenforceable, all remaining parts, terms and provisions shall remain in full force and effect and shall in no way be invalidated, impaired or affected thereby. If the provisions of any law causing such invalidity, illegality or unenforceability may be waived, they are hereby waived to the end that this Agreement and the Contract Documents may be deemed valid and binding agreements, enforceable in accordance with their terms to the greatest extent permitted by applicable law. In the event any provision not otherwise included in the Contract Documents is required to be included by any applicable law, that provision is deemed included herein by this reference (or, if such provision is required to be included in any particular portion of the Contract Documents, that provision is deemed included in that portion).

5.06 It is understood and agreed that in no instance are the persons signing this Agreement for or on behalf of Owner or acting as an employee, agent, or representative of Owner, liable on this Agreement or any of the Contract Documents, or upon any warranty of authority, or otherwise, and it is further understood and agreed that liability of Owner is limited and confined to such liability as authorized or imposed by the Contract Documents or applicable law.

5.07 In entering into a public works contract or a subcontract to supply goods, services or materials pursuant to a public works contract, Design-Build Entity or Subcontractor offers and agrees to assign to the awarding body all rights, title and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. §15) or under the Cartwright Act (Chapter 2 (commencing with §16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services or materials pursuant to the public works contract or the subcontract. This assignment shall be made

and become effective at the time Owner tenders final payment to Design-Build Entity, without further acknowledgment by the parties.

5.08 Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the State of California Department of Industrial Relations, are deemed included in the Contract Documents and on file at Owner's Office, and shall be made available to any interested party on request. Pursuant to California Labor Code §§ 1860 and 1861, in accordance with the provisions of Section 3700 of the Labor Code, every Design-Build Entity will be required to secure the payment of compensation to his employees. Design-Build Entity represents that it is aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and Design-Build Entity shall comply with such provisions before commencing the performance of the Work of the Contract Documents.

5.09 Owner shall have the right to review all phases of Design-Build Entity's design including, but not limited to, drawings, specifications, shop drawings, samples and submittals, as specified in the Contract Documents. Such review and other action shall not relieve Design-Build Entity of its responsibility for a complete design complying with the requirements of the Contract Documents; but rather, such review shall be in furtherance of Owner's monitoring and accepting the design as developed and issued by the Design-Build Entity, consistent with these Contract Documents. Design-Build Entity's responsibility to design and construct the Project in conformance with the Contract Documents shall be absolute.

5.10 This Agreement and the Contract Documents shall be deemed to have been entered into in the County of Kern, State of California, and governed in all respects by California law (excluding choice of law rules). The exclusive venue for all disputes or litigation hereunder shall be in the Superior Court for the County of Kern.

IN WITNESS WHEREOF the parties have executed this Agreement the day and year first above written.

RECOMMENDED AND APPROVED AS TO CONTENT:

GENERAL SERVICES DIVISION OF THE COUNTY ADMINISTRATIVE OFFICE

By _____
Geoffrey Hill, Chief General Services Officer

BHRS

By _____
Bill Walker

APPROVED AS TO FORM:

OFFICE OF THE COUNTY COUNSEL

_____

COUNTY OF KERN BOARD OF SUPERVISORS

By _____
Chairman

DESIGN-BUILD ENTITY

_____
Type of Entity
(corporation, partnership, sole proprietorship)

By _____
Signature

_____
Typed Name

_____
Title of Individual Executing Document on behalf of Firm

END OF DOCUMENT

DOCUMENT 00 5201

BRIDGING DOCUMENTS

ARTICLE 1 – GENERAL

1.01 Bridging Documents

A. Bridging Documents define Owner's Program for the Project, including but not limited to:

1. Size, type, shape, height, configuration, and desired design character of buildings, improvements, appurtenances and Sites.

2. Performance, and in some cases prescriptive specifications, covering the quality of materials, equipment, building components and workmanship, public spaces, landscape design, and general architectural character of the buildings, improvements, appurtenances and Sites.

3. Preliminary plans or building layouts.

4. Site requirements, parking and infrastructure items.

ARTICLE 2 – INTERPRETATION OF BRIDGING DOCUMENTS

2.01 General—Prescriptive or Performance Standards

A. Bridging Documents identify items using either prescriptive or performance standards. When items are subject to prescriptive standards, the Project provided by Design-Build Entity shall include the specific item as described. When items are subject to performance standards, the Project provided by Design-Build Entity shall include items which satisfy the required performance standards.

2.02 Silence Regarding Standard

A. Where Bridging Documents are silent regarding whether a prescriptive or performance standard is intended, Design-Build Entity shall provide a Project which satisfies the following general standards:

1. For all items of aesthetics, required systems, equipment, and user items or items subject to visual observation, Bridging Documents are intended to specify prescriptive standards, either as specifically stated in the Bridging Documents or by reference to other project design elements.

2. For all items of engineering performance and code compliance (e.g., electrical runs, duct layouts and other engineering systems specified in terms of performance or code requirements), and other items of design or construction not subject to visual observation, Bridging Documents are intended to specify performance standards.

2.03 Relationship to Proposal - General Conditions and Division 01 Specifications

A. Bridging Documents represent the final agreed Contract scope and supersede anything inconsistent in Design-Build Entity's Proposal.

B. To the extent that the Bridging Specifications contain certain terms and conditions that are also addressed in Document 00 7253 (General Conditions) and Division 01 Specifications (commencing with Section 01 1100 (Summary of Work)) of these Contract Documents, then precedence shall be given to the more stringent of the two requirements that in Owner's judgment provides the Owner with the greater quality or scope of service.

ARTICLE 3 – COMPLETENESS OF BRIDGING DOCUMENTS

3.01 Intent

A. Bridging Documents are intended to describe and specify requirements for fully functional and legally operable Kern County BHRS Psychiatric Halth Facility, generally meeting in all respects Owner's required design, construction, equipment and performance standards.

3.02 Effect of Incompleteness or Omissions

A. If any Bridging Documents are determined, at any time, to be incomplete and/or to omit any required aspect of design, construction, equipment, systems or other component necessary to provide fully functional and legally operable Kern County BHRS Psychiatric Health Facility meeting the standards of the Kern County BHRS Psychiatric Health Facility Bridging Documents then Design-Build Entity shall request additional Project related information from Owner in accordance with Document 00 7253 (General Conditions) and Section 01 2600 (Modification Procedures and Pricing of Changed Work).

ARTICLE 4 – LIST OF BRIDGING DOCUMENTS AND RELATED MATERIALS

4.01 Bridging Documents Include:

A. Project Background and Performance Criteria and Concept Drawings for the Kern County Justice Facility set forth in Annex 1 to this Document 00 5201, including all plans, specifications, drawings, reports and data referenced therein.

4.02 Additional Supporting Project Information:

A. Design-Build Entity's attention is also directed to Document 00 3100 (Available Project Information), which lists documents and materials containing existing conditions information that were provided to Design-Build Entity's prior to the submission of Proposals. The documents and information referenced in Document 00 3100 (Available Project Information) are not part of the Contract Documents and are "for information purposes only."

END OF DOCUMENT

ANNEX 1 TO DOCUMENT 00 5201 (BRIDGING DOCUMENTS)

KERN COUNTY BHRS PSYCHIATRIC HEALTH FACILITY BRIDGING DOCUMENTS

ARTICLE 1 – PROJECT SCOPE SUMMARY

KERN COUNTY
616-806 WORKMAN STREET, BAKERSFIELD, CA 93307

This project will design and construct two 16 bed Psychiatric Health Facilities (PHFs). One facility will provide an Adult PHF. One facility will provide a Minor PHF. The two facilities combined will provide approximately 33,592 square feet (sf) of building space located on approximately 4 acres of a 5 acre site. The site is a Kern County owned site in Bakersfield, California. The PHF's will include housing, treatment, administrative, support, and program space. The facility will be constructed primarily of wood and wood/steel construction.

The Adult PHF will provide approximately 16,763 sf for secure mental health/special treatment unit with 26 beds + 1 seclusion room . The Adult PHF building will also include treatment rooms; recreation, administrative, dining and educational/vocational program space. The support services spaces will include storage and laundry areas; and food services staging and kitchen, and miscellaneous mechanical and electrical spaces.

The Minor PHF will provide approximately 16,829 sf for secure mental health/special treatment unit with 20 beds + 1 seclusion room . The Minor PHF building will also include treatment rooms; recreation, administrative, dining and educational/vocational program space. The support services spaces will include storage and laundry areas; and food services staging Facilities Management, and miscellaneous mechanical and electrical spaces.

This project will also include, but is not limited to, outdoor secure recreation spaces, electrical; plumbing; mechanical; heating, ventilation, and air conditioning; security; water and sewer services; and fire protection systems; as well as all necessary appurtenances. A visitor parking lot, landscaping and secure outdoor activity areas will also be included.

ARTICLE 2 – BRIDGING DOCUMENTS CONSIST OF THE FOLLOWING DOCUMENTS TO THE RFP BOUND IN SEPERATE VOLUMES AND INCORPORATED HEREIN BY REFERENCE.

A. Bridging documents are as follows:

2.02 Bridging Documents Design Booklet Dated: July 31, 2020 consisting of the following information:

1. Design Goals
2. Exterior Finishes
3. Interior Finishes
4. Program Matrix
5. Project Schedule
6. Narratives
    a. Architecture / Interiors
    b. Structural
    c. MEP
    d. Site Design
7. Code Analysis
    a. Memorandum of Understanding
    b. Life Safety Plans
    c. Correspondence with Jurisdiction

2.03 Volume 2B: Bridging Drawings Dated: July 31, 2020 and consisting of the following Drawings:

<u>General</u>
G-101 Index Sheet
G-201 Code Analysis
G-301 Life Safety Plan – Adult
G-302 Life Safety Plan – Minor

<u>Civil</u>
C-1.0 Existing Conditions and Demolition Plan
C-2.0 Overall Grading and Drainage Plan
C-2.1 Grading and Drainage Plan
C-3.0 Wet Utility Plans

Landscape
L-100 Conceptual Landscape Plan
L-101 Courtyard Enlargement Plan
L-102 Site Details
L-200 Conceptual Irrigation Plan

Architectural
A-112 Site Details
A-121 First Floor Plan – Adult
A-122 First Floor Plan – Minor
A-131 Furniture and Finish Plan – Adult
A-132 Furniture and Finish Plan – Minor
A-151 First Floor Reflected Ceiling Plan – Adult
A-152 First Floor Reflected Ceiling Plan – Minor
A-161 Roof Plan – Adults
A-162 Roof Plan – Minor
A-201 Exterior Elevations – Adult
A-202 Exterior Elevations – Adult
A-203 Exterior Elevations – Minor
A-204 Exterior Elevations – Minor
A-211 Interior Elevations – Adult
A-212 Interior Elevations – Adult
A-213 Interior Elevations – Adult
A-214 Interior Elevations – Minor
A-215 Interior Elevations – Minor
A-216 Interior Elevations – Minor
A-301 Building Sections – Adult
A-302 Building Sections – Minor
A-311 Wall Sections – Adult
A-312 Wall Sections – Minor
A-401 Enlarged Floor Plans – Adult
A-402 Enlarged Floor Plans – Adult
A-403 Enlarged Floor Plans – Minor
A-404 Enlarged Floor Plans – Minor
A-501 ADA Accessibility Requirements, Typical Requirements at Plumbing Fixtures
A-521 Rated Wall Assemblies
A-531 Interior Details
A-532 Interior Details
A-601 Room Finish Schedule
A-611 Door Schedule
A-612 Storefront and Window Types
A-621 Wall Assembly Types
A-622 Floor and Roof Assembly Types

Structural
S-001 General Notes
S-101 Foundation Plan – Adult
S-102 Foundation Plan – Minor
S-111 Low Roof Framing Plan – Adult
S-112 Low Roof Framing Plan – Minor
S-121 High Roof Framing Plan – Adult
S-122 High Roof Framing Plan – Minor
S-501 Foundation Details
S-601 Floor Framing Details
S-602 Roof Framing Details

Mechanical
MH-001 Mechanical Legend and General Notes
MH-101 First Floor Mechanical Plan – Adult
MH-102 First Floor Mechanical Plan – Minor
MH-111 Refrigerant Piping Plan – Adult
MH-112 Refrigerant Piping Plan – Minor
MH-121 Reflected Ceiling Plan – Adult
MH-122 Reflected Ceiling Plan – Minor
MH-131 Mechanical Roof Plan – Adult
MH-132 Mechanical Roof Plan – Minor
MH-501 Mechanical Details I
MH-502 Mechanical Details II
MH-601 Mechanical Schedules I
MH-801 Controls and Schedules I
MH-802 Controls and Flow Diagram II
MH-803 Controls and Flow Diagram III
MH-804 Controls and Flow Diagram IV

Electrical
E-001 Electrical Legend and General Notes
E-002 Lighting Fixture Schedules
E-100 Electrical Site Plan
E-121 First Floor Lighting Plan – Adult
E-122 First Floor Lighting Plan – Minor
E-131 First Floor Power Plan – Adult
E-132 First Floor Power Plan – Minor
E-141 First Floor Systems Plan – Adult
E-142 First Floor Systems Plan – Minor
E-501 Electrical Details

Plumbing
PP-001 Plumbing Legend and General Notes
PP-101 Foundation Plumbing Plan – Adult
PP-102 Foundation Plumbing Plan – Minor
PP-111 First Floor Plumbing Plan – Adult
PP-112 First Floor Plumbing Plan – Minor
PP-401 Enlarged Plumbing Plan I
PP-501 Plumbing Details I
PP-502 Plumbing Details II
PP-601 Plumbing Schedule I

First Protection
F-101 Fire Alarm Panel Location / Fire Riser Location

2.04 Volume 2C: Technical Specifications Dated: July 31, 2020 and generally consisting of the following sections:

DIVISION 02 – EXISTING CONDITIONS

Section 02 1725	Existing Site Utilities
Section 02 4119	Selective Demolition

DIVISION 03 – CONCRETE

Section 03 3000	Cast-In-Place Concrete
Section 03 3001	Concrete Floor Slabs
Section 03 3002	Concrete Floor Slab Preparation

DIVISION 04 – MASONRY

Section 04 2000	Unit Masonry

DIVISION 05 – METALS

Section 05 1200	Structural Steel
Section 05 5000	Metal Fabrications

DIVISION 06 - WOOD, PLASTICS AND COMPOSITES

Section 06 1000	Rough Carpentry
Section 06 1733	Solid Web Wood Joists
Section 06 1753	Open Web Wood Joists
Section 06 1800	Glue-Laminated Structural Units
Section 06 2000	Finish Carpentry

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

Section 07 2100	Building Insulation
Section 07 2700	Building Air Barrier Requirements
Section 07 2719	Sheet-Applied Air and Water Barrier System
Section 07 4000	Preformed Metal Panel Systems
Section 07 4649	Fiber Cement Siding
Section 07 5400	(TPO) Single-Ply Roofing System
Section 07 6200	Sheet Metal Flashing and Trim
Section 07 7233	Roof Hatch
Section 07 8400	Firestopping / Smoke Seal Systems
Section 07 9000	Joint Sealers

DIVISION 08 – OPENINGS

Section 08 1100	Hollow Metal Doors and Frames
Section 08 1400	Wood Doors
Section 08 3100	Access Doors
Section 08 3316	Coiling Counter Doors
Section 08 4113	Aluminum Storefront and Entrances
Section 08 4500	Insulated Translucent Panel Skylight System
Section 08 5113	Aluminum Windows
Section 08 5619	Aluminum Transaction Windows
Section 08 7100	Door Hardware
Section 08 8000	Glass and Glazing
Section 08 9100	Exterior Wall Louvers

DIVISION 09 – FINISHES

Section 09 2226	Suspended GWB Ceiling
Section 09 2423	Cement Stucco
Section 09 2900	Gypsum Board Assemblies
Section 09 3000	Tile
Section 09 5100	Acoustical Ceilings
Section 09 5426	Linear Wood Ceilings
Section 09 6100	Concrete Floor Sealing
Section 09 6500	Resilient Flooring
Section 09 6516	Resilient Sheet Flooring
Section 09 6723	Fluid-Applied Flooring System
Section 09 6800	Carpet
Section 09 7723	Plastic Sheets Wainscots
Section 09 7743	Solid Polymer Wall Cladding
Section 09 8400	Acoustical Wall Panels
Section 09 9000	Paints and Coatings

DIVISION 10 – SPECIALTIES

Section 10 1400	Interior Signage
Section 10 1419	Dimensional Letter Signage
Section 10 1453	Traffic Signage
Section 10 2600	Corner Guards
Section 10 2800	Toilet and Miscellaneous Accessories
Section 10 4400	Fire Extinguishers and Cabinets
Section 10 5123	Plastic Laminate Lockers

DIVISION 11 – EQUIPMENT

Section 11 2433	Roof Anchors
Section 11 4000	Foodservice Equipment

DIVISION 12 – FURNISHINGS

Section 12 2000	Window Treatment
Section 12 3200	Manufactured Casework
Section 12 3661	Solid Surface Countertops
Section 12 5219	Custom Upholstery

DIVISION 13 - SPECIAL CONSTRUCTION

Not Used

DIVISION 14 - CONVEYING EQUIPMENT

Not Used

DIVISION 21 – GENERAL MECHANICAL

Section 20 000	Mechanical General Provisions

DIVISION 21 – FIRE SUPPRESSION

Section 21 1313	Fire Protection Systems

DIVISION 22 – PLUMBING

Section 22 0500	Plumbing Systems
Section 22 1113	Facility Water Distribution Piping
Section 22 1313	Facility Sanitary Sewers

DIVISION 23 – HEATING, VENTILATING, AND AIR CONDITIONING

Section 23 0500	Heating, Ventilation, and Air Conditioning Systems

DIVISION 26 – ELECTRICAL

Section 26 0000	Electrical General Provisions
Section 26 2413	Electrical Systems-Electrical Service and Distribution
Section 26 5000	Electrical Lighting

DIVISION 27 - COMMUNICATIONS

Section 27 0000	Electrical Low Voltage Systems, Security and Telecommunications

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

Section 28 3100	Fire Alarm Systems

DIVISION 31 – EARTHWORK

Section 31 1000	Site Clearing
Section 31 2000	Earth Moving

DIVISION 32 – EXTERIOR IMPROVEMENTS

Section 32 1123	Underslab Capillary Break
Section 32 1216	Asphalt Paving
Section 32 1313	Concrete Paving
Section 32 1373	Concrete Paving Joint Sealants
Section 32 1713	Wheelstops
Section 32 1723	Pavement Markings
Section 32 1800	Athletic and Recreational Surfacing
Section 32 3300	Site Furnishings
Section 32 4000	Landscape Stone
Section 32 8400	Irrigations
Section 32 9200	Turf and Grasses
Section 32 9300	Plants

DIVISION 33 – UTILITIES

Section 33 0500	Common Work Results for Utilities
Section 33 4100	Storm Utility Drainage Piping
Section 33 4613	Foundation Drainage Piping

END OF ANNEX 1

DOCUMENT 00 5500

NOTICE TO PROCEED WITH CONSTRUCTION

Dated: _____, 202__

To: _____
(Design-Build Entity)

Address: _____

_____

CONTRACT FOR: **KERN COUNTY BHRS PSYCHIATRIC HEALTH FACILITY BAKERSFIELD, CA**

CONTRACT NO**:** **[INSERT NUMBER]**

You are notified that the Contract Time under the above Contract will commence to run on _____ **[202__]**. On that date, you are to start performing your obligations with respect to Work at the Site under the Contract Documents. In accordance with Article 2 of Document 00 5200 (Agreement), the dates of Substantial Completion and Final Completion for the entire Work are _____,**[202__]** and _____, **[202__]**, respectively.

Before you may start any Work at the Site, you must:

1. Submit certified Safety Program and related information

2. **[Other]**

COUNTY OF KERN

By: _____

_____
(Print Name)

Its: Project Manager

Date: _____

END OF DOCUMENT

DOCUMENT 00 5501

NOTICE TO PROCEED WITH DESIGN SERVICES

Dated: _____, 202__

To: _____
(Design-Build Entity)

Address: _____

_____

CONTRACT FOR: **KERN COUNTY BHRS PSYCHIATRIC HEALTH FACILITY BAKERSFIELD, CA**

CONTRACT NO**:** **[INSERT NUMBER]**

You are notified that the Contract Time under the above Contract will commence to run on _____ **[202__]**. On that date, you are to start performing your design obligations with respect to Work at the Site under the Contract Documents. In accordance with Article 2 of Document 00 5200 (Agreement), the date of Substantial Completion of the Project is _____,**[202__]**, the date of Final Completion is _____,**[202__]**, and the date the Certificate of Occupancy must be obtained is _____,**[202__]**.

Before you may start any Work at the Site, you must:

1. Submit certified Safety Program and related information

2. **[Other]**

COUNTY OF KERN

By: _____

_____
(Print Name)

Its: Project Manager

Date: _____

END OF DOCUMENT

DOCUMENT 00 6113.13

CONSTRUCTION PERFORMANCE BOND
(Design-Build)

THIS CONSTRUCTION PERFORMANCE BOND ("Bond") is dated ***[Month, Day]*****,** 202_ is in the amount of ***[Insert Amount]*** ("Penal Sum"),which is 100% of the Contract Sum and is entered into by and between the parties listed below to ensure the faithful performance of the Design-Build Contract identified below. This Bond consists of this page and the Bond Terms and Conditions, Paragraphs 1 through 14 attached to this page. Any singular reference to ***[Insert name of Design-Build Entity]*** (**"**Design-Build Entity"), ***[Insert name of Surety]*** ("Surety"), COUNTY OF KERN ("Owner"), or other party shall be considered plural where applicable.

DESIGN-BUILD ENTITY:	**SURETY:**
[Insert name of Design-Build Entity]	***[Insert name of Design-Build Entity]***
_____	_____
Address	Principal Place of Business
_____	_____
City/State/Zip	City/State/Zip

DESIGN-BUILD CONTRACT: Agreement for the Kern County BHRS Psychiatric Health Facility located at 616-806 Workman Street in Bakersfield, California, dated ***[Month, Day]*****,** 202_, in the amount of ***[Insert Amount]***).

DESIGN-BUILD ENTITY AS PRINCIPAL	**SURETY**
Company: (Corp. Seal)	Company: (Corp. Seal)
Signature:_____	Signature: _____
Name: _____	Name: _____
Title: _____	Title: _____

BOND TERMS AND CONDITIONS

1 Design-Build Entity and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to Owner for the complete and proper performance of the Design-Build Contract, which is incorporated herein by reference.

2 If Design-Build Entity completely and properly performs all of its obligations under the Design-Build Contract, Surety and Design-Build Entity shall have no obligation under this Bond.

3 If there is no Owner Default, Surety's obligation under this Bond shall arise after:

3.1 Owner provides Surety with written notice that Owner has declared a Design-Build Entity Default under the Design-Build Contract pursuant to the terms of the Design-Build Contract; and

3.2 Owner has agreed to pay the Balance of the Contract Sum:

3.2.1 To Surety in accordance with the terms of this Bond and the Design-Build Contract; or

3.2.2 To a Design-Build Entity selected to perform the Design-Build Contract in accordance with the terms of this Bond and the Design-Build Contract.

4 When Owner has satisfied the conditions of Paragraph 3 above, Surety shall promptly (within 40 Days) and at Surety's expense elect to take one of the following actions:

4.1 Arrange for Design-Build Entity, with consent of Owner, to perform and complete the Design-Build Contract (but Owner may withhold consent, in which case the Surety must elect an option described in Paragraphs 4.2, 4.3 or 4.4 below); or

4.2 Undertake to perform and complete the Design-Build Contract itself, through its agents or through independent contractors or design-build entities; provided, that Surety may not select Design-Build Entity as its agent or independent contractor or design-build entity without Owner's consent; or

4.3 Undertake to perform and complete the Design-Build Contract by obtaining bids from qualified contractors or design-build entities acceptable to Owner for a contract for performance and completion of the Design-Build Contract and, upon determination by Owner of the lowest responsive and responsible Bidder, arrange for a contract to be prepared for execution by Owner and the contractor or design-build entity selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Design-Build Contract; and, if Surety's obligations defined in Paragraph 7 below, exceed the Balance of the Contract Sum, then Surety shall pay to Owner the amount of such excess; or

4.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor or design-build entity, and with reasonable promptness under the circumstances and, after investigation and consultation with Owner, determine in good faith its monetary obligation to Owner under Paragraph 7 below, for the performance and completion of the Design-Build Contract and, as soon as practicable after the amount is determined, tender payment therefor to Owner with full explanation of the payment's calculation. If Owner accepts Surety's tender under this Paragraph 4.4 above, Owner may still hold Surety liable for future damages then unknown or unliquidated resulting from the Design-Build Entity Default, as agreed by Owner and Surety at the time of tender. If Owner disputes the amount of Surety's tender under this Paragraph 4.4 above, Owner may exercise all remedies available to it at law to enforce Surety's liability under Paragraph 7 below.

5 If Surety does not proceed as provided in Paragraph 4 above then Surety shall be deemed to be in default on this Bond ten Days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond. Such Surety default shall be independent from the Design-Build Entity Default. To the extent Surety's independent default causes Owner to suffer damages, including, but not limited to, delay damages, which are different from, or in addition to (but not duplicative of) damages which Owner is entitled to receive under the Design-Build Contract, Surety shall also be liable for such damages.

6 At all times Owner shall be entitled to enforce any remedy available to Owner at law or under the Design-Build Contract including, without limitation, and by way of example only, rights to perform work, protect Work, mitigate damages, advance critical Work to mitigate schedule delay, and coordinate Work with other consultants or contractors or design-build entities.

7 If Surety timely elects to act under Paragraphs 4.1, 4.2 or 4.3 above and complies with its obligations under this Bond, Surety's obligations under this Bond are commensurate with the obligations of Design-Build Entity under the Design-Build Contract. Surety's obligations shall include, but are not limited to:

7.1 The responsibilities of Design-Build Entity under the Design-Build Contract for completion of the Design-Build Contract and correction of Defective Work;

7.2 The responsibilities of Design-Build Entity under the Design-Build Contract to pay liquidated damages; and

7.3 Additional legal, design professional and delay costs resulting from Design-Build Entity Default or resulting from the actions or failure to act of the Surety under Paragraph 4 above (but excluding attorney's fees incurred to enforce this Bond).

8 If Surety timely elects to act under Paragraphs 4.1, 4.3 or 4.4 above and complies with its obligations under this Bond, Surety's monetary obligation under this Bond is limited by the amount of this Bond identified herein as the Penal Sum.

9 No right of action shall accrue on this Bond to any person or entity other than Owner or its successors or assigns.

10 Surety hereby waives notice of any change, alteration or addition to the Design-Build Contract or to related subcontracts, design agreements, purchase orders and other obligations, including changes of time, and of any Owner action in accordance with Paragraph 6 above. Surety consents to all terms of the Design-Build Contract, including provisions on changes to the Contract. No extension of time, change, alteration, Modification, deletion, or addition to the Contract Documents, or of the Work (including services) required thereunder, shall release or exonerate Surety on this Bond or in any way affect the obligations of Surety on this Bond. No action under Paragraph 10 above shall release or exonerate Surety on this Bond or in any way affect the obligations of Surety on this Bond, unless such action is an Owner Default. Except in the event of an Owner Default, and to the extent Surety is damaged thereby, Surety hereby waives the provisions of California Civil Code Section 2809, and any other law which either prohibits, restricts, limits or modifies in any way any obligation of a surety which is larger in amount or in any other respect more burdensome than that of the principal.

11 Any proceeding, legal or equitable, under this Bond shall be instituted in any court of competent jurisdiction where a proceeding is pending between Owner and Design-Build Entity regarding the Design-Build Contract, or in the courts of the County of Kern, or in a court of competent jurisdiction in the location in which the Work is located. Communications from Owner to Surety under Paragraph 3.1 above shall be deemed to include the necessary agreements under Paragraph 3.2 above unless expressly stated otherwise.

12 All notices to Surety or Design-Build Entity shall be mailed or delivered (at the address set forth on the signature page of this Bond), and all notices to Owner shall be mailed or delivered as provided in Document 00 5200 (Agreement). Actual receipt of notice by Surety, Owner or Design-Build Entity, however accomplished, shall be sufficient compliance as of the date received at the foregoing addresses.

13 Any provision in this Bond conflicting with any statutory or regulatory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein.

14 Definitions

14.1 Balance of the Contract Sum: The total amount payable by Owner to Design-Build Entity pursuant to the terms of the Design-Build Contract after all proper adjustments have been made under the Design-Build Contract, for example, deductions for progress payments made, and increases/decreases for approved Modifications to the Design-Build Contract**.**

14.2 Design-Build Contract: The agreement between Owner and Design-Build Entity identified on the signature page of this Bond, including all Contract Documents and changes thereto.

14.3 Design-Build Entity Default: Material failure of Design-Build Entity, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Design-Build Contract, limited to “default” or any other condition allowing a termination for cause as provided in Document 00 7200 (General Conditions).

14.4 Owner Default: Material failure of Owner, which has neither been remedied nor waived, to pay Design-Build Entity progress payments due under the Design-Build Contract or to perform other material terms of the Design-Build Contract, if such failure is the cause of the asserted Design-Build Entity Default and is sufficient to justify Design-Build Entity termination of the Design-Build Contract.

END OF DOCUMENT

DOCUMENT 00 6113.16

CONSTRUCTION LABOR AND MATERIAL PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS:

1.01 THAT WHEREAS, the County of Kern ("Owner") has awarded to **(Name of Design-Build Entity)**_____ as Principal Contract Number _____ dated the ___ day of _____**,** 20___ (the "Contract"), titled THE KERN COUNTY BHRS PSYCHIATRIC HEALTH FACILITY PROJECT in the amount of $_____, which Contract is by this reference made a part hereof, for the Work of the following Contract:

A. Work is comprised of the design and construction of the Kern County BHRS Psychiatric Health Facility located at 616-806 Workman Street in Bakersfield, California.

1.01 AND WHEREAS, Principal is required to furnish a bond in connection with the Contract to secure the payment of claims of laborers, mechanics, material suppliers, and other persons as provided by law;

1.02 NOW, THEREFORE, we, the undersigned Principal and (Name of Surety)_____ _____ , as Surety, are held and firmly bound unto Owner in the sum of 100% OF THE CONTRACT PRICE ($_____), for which payment well and truly to be made we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

1.03 THE CONDITION OF THIS OBLIGATION IS SUCH, that if Principal, or its executors, administrators, successors, or assigns approved by Owner, or its subcontractors shall fail to pay any of the persons named in California Civil Code §9100, or amounts due under the State of California Unemployment Insurance Code with respect to work or labor performed under the Contract, or for any amounts required to be deducted, withheld, and paid over to the State of California Employment Development Department from the wages of employees of Principal and subcontractors pursuant to Section 13020 of the State of California Unemployment Insurance Code with respect to such work and labor, that Surety will pay for the same in an amount not exceeding the sum specified in this bond, plus reasonable attorneys' fees, otherwise the above obligation shall become and be null and void.

1.04 This bond shall inure to the benefit of any of the persons named in California Civil Code §9100, as to give a right of action to such persons or their assigns in any suit brought upon this bond. The intent of this bond is to comply with the California Mechanic's Lien Law.

1.05 Surety, for value received, hereby expressly agrees that no extension of time, change, modification, alteration, or addition to the undertakings, covenants, terms, conditions, and agreements of the Contract, or to the work to be performed thereunder, shall in any way affect the obligation of this bond; and it does hereby waive notice of any such extension of time, change, modification, alteration, or addition to the undertakings, covenants, terms, conditions, and agreements of the Contract, or to the work to be performed thereunder.

1.06 Surety's obligations hereunder are independent of the obligations of any other surety for the payment of claims of laborers, mechanics, material suppliers, and other persons in connection with Contract; and suit may be brought against Surety and such other sureties, jointly and severally, or against any one or more of them, or against less than all of them without impairing Owner's rights against the other.

1.07 Correspondence or claims relating to this bond shall be sent to Surety at the address set forth below.

IN WITNESS WHEREOF, we have hereunto set our hands this _____ day of _____ _____, 20___.

DESIGN-BUILD ENTITY AS PRINCIPAL		**SURETY**	
Company:	(Corp. Seal)	Company:	(Corp. Seal)
_____		_____	
Signature		Signature	
_____		_____	
Name		Name	
_____		_____	
Title		Title	
Address:_____		Address:_____	
_____		_____	
_____		_____	

END OF DOCUMENT

DOCUMENT 00 6200

WITHHELD CONTRACT FUNDS CERTIFICATION

PART 1 - GENERAL

1.01 SUMMARY

A. Public Contract Code Section §22300 requires the inclusion in invitations for public agency bids and in public agency contracts a provision which will, at the expense of the contractor, permit the substitution of securities of equal value for any construction progress monies withheld to ensure performance under a contract. Therefore, as the Design-Build Entity for the Kern County BHRS Psychiatric Health Facility, Design-Build Entity hereby certifies the following:

[ ] I do not intend to substitute securities for monies withheld and thereby avail myself of the process and rights provided in Public Contract Code Section §22300.

[ ] I do intend to exercise my option as specified in Public Contract Code Section §22300 and hereby agree to the following:

1. I will establish an escrow agreement satisfactory to the County, with a state or federally chartered bank, which shall contain at a minimum provisions governing inter alia:

    a. The amount of securities to be deposited;

    b. The type of securities to be deposited, (eligible securities for deposit are described in Government Code Section 16430);

    c. The providing of powers of attorney or other documents necessary for the transfer of the securities deposited;

    d. The terms and conditions of conversion to cash to provide funds to meet defaults by the Contractor including, but not limited to termination of the Contractor's control over the work, stop notices filed pursuant to law, assessment of liquidated damages or other amounts to be kept or retained under the provisions of the contract;

    e. The decrease in value of securities on deposit; and

    f. The termination of the escrow agreement upon completion of the contract and acceptance by the County.

2. I will obtain written consent of the surety to any such agreement; and

3. I will attach to each progress payment submitted a notarized copy of escrow instructions executed by agents thereof and on bank letterhead as proof that such an account has been established. Such instructions will set forth that securities deposited shall not be withdrawn for any purpose (with contractor's complete and unreserved agreement) without prior written approval by the County of Kern with respect to the Project herein above referenced.

_____
Signature of Design-Build Entity

END OF DOCUMENT

DOCUMENT 00 6290

ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION
California Public Contract Code §22300

THIS ESCROW AGREEMENT ("Escrow Agreement") is made and entered into this ____ day of _____**,** 201__**,** by and between the County of Kern, ("Owner"), whose address is the County Administrative Office, General Services Division, 1115 Truxtun Avenue, Bakersfield, California 93301-4639, **(Name of Design-Build Entity)**_____ _____ _____ ("Design-Build Entity"), whose place of business is located at **(Design-Build Entity's Address)** _____, and **[ ]** Owner, as escrow agent **OR [ ] (Name of Bank)** _____, a state or federally chartered bank in the State of California, whose place of business is located at _____ _____ ("Escrow Agent").

For the consideration hereinafter set forth, Owner, Design-Build Entity and Escrow Agent agree as follows:

1.01 Pursuant to California Public Contract Code §22300, Design-Build Entity has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by Owner pursuant to Contract Number _____ entered into between Owner and Design-Build Entity for the Kern County BHRS Psychiatric Health Facility Project located at 616-806 Workman Street in Bakersfield, California____ in the amount of $_____ dated _____, 201__ (the "Contract"). Alternatively, on written request of Design-Build Entity, Owner shall make payments of the retention earnings directly to Escrow Agent. When Design-Build Entity deposits the securities as a substitute for Contract earnings, Escrow Agent shall notify Owner within ten Days of the deposit. The market value of the securities at the time of substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between Owner and Design-Build Entity. Securities shall be held in name of __ _____, and shall designate Design-Build Entity as the beneficial owner.

1.02 Owner shall make progress payments to Design-Build Entity for those funds which otherwise would be withheld from progress payments pursuant to the Contract provisions, provided that Escrow Agent holds securities in the form and amount specified above.

1.03 When Owner makes payment(s) of retention earned directly to Escrow Agent, Escrow Agent shall hold said payment(s) for the benefit of Design-Build Entity until the time that the escrow created under this Escrow Agreement is terminated. Design-Build Entity may direct the investment of the payments into securities. All terms and conditions of this Escrow Agreement and the rights and responsibilities of the parties shall be equally applicable and binding when Owner pays Escrow Agent directly.

1.04 Design-Build Entity shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account, and all expenses of Owner. Such expenses and payment terms shall be determined by Owner, Design-Build Entity, and Escrow Agent.

1.05 Interest earned on securities or money market accounts held in escrow and all interest earned on that interest shall be for sole account of Design-Build Entity and shall be subject to withdrawal by Design-Build Entity at any time and from time to time without notice to Owner.

1.06 Design-Build Entity shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from Owner to Escrow Agent that Owner consents to withdrawal of amount sought to be withdrawn by Design-Build Entity.

1.07 Owner shall have the right to draw upon the securities in the event of default by Design-Build Entity. Upon seven Days' written notice to Escrow Agent from Owner of the default, Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by Owner.

1.08 Upon receipt of written notification from Owner certifying that the Contract is final and complete, and that Design-Build Entity has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Design-Build Entity all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payments of fees and charges.

1.09 Escrow Agent shall rely on written notifications from Owner and Design-Build Entity pursuant to Paragraphs 1.05 through 1.08, inclusive, of this Document 00 6290 and Owner and Design-Build Entity shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of securities and interest as set forth above.

1.10 Names of persons who are authorized to give written notice or to receive written notice on behalf of Owner and on behalf of Design-Build Entity in connection with the foregoing, and exemplars of their respective signatures are as follows:

ON BEHALF OF OWNER: COUNTY OF KERN	**ON BEHALF OF DESIGN-BUILD ENTITY:**
_____	_____
Title	Title
_____	_____
Name	Name
_____	_____
Signature	Signature
_____	_____
Address	Address
_____	_____
City/State/Zip Code	City/State/Zip Code

ON BEHALF OF ESCROW AGENT:

_____
Title

_____
Name

_____
Signature

_____
Address

_____
City/State/Zip Code

At the time the Escrow Account is opened, Owner and Design-Build Entity shall deliver to Escrow Agent a fully executed counterpart of this Document 00 6290 (Escrow Agreement).

IN WITNESS WHEREOF, the parties have executed this Escrow Agreement by their proper officers on the date first set forth above.

OWNER: COUNTY OF KERN

_____
Title

_____
Name

_____
Signature

DESIGN-BUILD ENTITY:

_____
Title

_____
Name

_____
Signature

ATTEST:

_____
Signature

_____
Print Name

ESCROW AGENT:

_____
Title

_____
Print Name

_____
Signature

REVIEWED AS TO FORM:

_____
Counsel for Owner

_____
Print Name

_____
Date

END OF DOCUMENT

DOCUMENT 00 6325

SUBSTITUTION REQUEST FORM

(Subject to Requirements of Section 01 1101 (Summary of Work – Design-Build Design Services)

To: **COUNTY OF KERN, Owner**
County Administrative Office, General Services Division
1115 Truxtun Avenue
Bakersfield, California 93301-4639

PROJECT: **Owner Project No:** _____	**Design-Build Entity:**

Substitution Request By:	Firm:

Transmittal Record	**Attn:**	**Firm:**	**Date Sent:**	**Date Rec'd:**	**Date Due:**
Design-Build Entity to Owner					
Design-Build Entity to Bridging Architect					
Owner / Bridging Architect to Consultant					
Bridging Architect to Owner Representative					
Owner Representative to Design-Build Entity					

We hereby submit for your consideration the following product instead of the specified item for the Project:

Section / Drawing	**Article**	**Specified Item**
Proposed Substitution:		

We have (a) attached manufacturer's literature, including complete technical data and laboratory test results, if applicable, (b) attached an explanation of why proposed substitution is a true equivalent to specified item, (c) included complete information on changes to Contract Documents that the proposed substitution will require for its proper installation, and (d) filled in the blanks below:

Design-Build Entity to complete questions that follow and certifies to the accuracy of all answers:

A.	Does the substitution affect dimensions shown on Drawings? Yes __ / No __. If No, please explain proposed mitigation and why substitution is equivalent to originally specified item:
B.	Will the undersigned pay for changes to the building design, including engineering and detailing costs caused by the requested substitution? Yes __ / No __. If No, please state reasons explain why substitution is equivalent to originally specified item:
C.	What effect does the substitution have on other trades? No effect: __ / Some effect__. If substitution will affect other trades, please explain the effect and why substitution is equivalent to originally specified item:
D.	Will substitution cause change to Project Schedule, or to critical delivery dates? Add? Shorten? If the substitution will add to schedule dates or affect critical activities, please explain why substitution is equivalent to originally specified item:
E.	Please describe differences between proposed substitution and specified item? Please explain and identify any and all differences, and please explain why substitution is equivalent to originally specified item:
F.	What is the Cost Differential to Design-Build Entity in original specified item and proposed substitution including all mark-ups? [If substitution requested prior to Contract execution, skip this question.]

G.	Are Manufacturer's guarantees for the proposed item the same as for item specified? Yes ____; No____. If No, please explain why substitution is equivalent to originally specified item:
H.	Design-Build Entity accepts full responsibility for delays caused by redesign of other items of the Work necessitated by substitution? Yes __ / No __. If No, please state reasons and explain why substitution is equivalent to originally specified item:
I.	Design-Build Entity states that the function, appearance and quality are equivalent or superior to the specified item? Yes __ / No __. If No, please explain why substitution is equivalent to originally specified item:

We certify that the function, appearance, and quality of the proposed substitution are equivalent or superior to those of the specified item, except as we may specifically state otherwise in this request.

Submitted by:_____ Signature: _____

Firm:_____ Date: _____

Address:_____ Phone/ Fax: _____

_____

Remarks:_____

Consultant Response:	**Owner Representative Response:**
o Accepted	o Accepted
o Not Accepted	o Not Accepted
o Accepted As Noted	o Accepted As Noted
o Accepted As Noted	o Accepted As Noted
Remarks:_____	**Remarks:**_____
_____	_____
By:_____	**By:**_____

END OF DOCUMENT

DOCUMENT 00 6530

AGREEMENT AND RELEASE OF ANY AND ALL CLAIMS
[Public Contract Code § 7100]

THIS AGREEMENT AND RELEASE OF ANY AND ALL CLAIMS ("Agreement and Release"), made and entered into this _____ day of _____, 202__, by and between the County of Kern ("Owner"), and _____ ("Design-Build Entity"), whose place of business is _____.

1.01 Owner and Design-Build Entity entered into Contract for Project Number _____ (the "Contract") for construction of the Kern County BHRS Psychiatric Health Facility Project located at 616-806 Workman Street, Bakersfield, California.

1.02 The Work under the Contract has been completed.

1.03 NOW THEREFORE, it is mutually agreed between Owner and Design-Build Entity as follows:

A Design-Build Entity will not be assessed liquidated damages except as detailed below:

Original Contract Sum	$ _____
Modified Contract Sum	$ _____
Payment to Date	$ _____
Liquidated Damages	$ _____
Payment Due Design-Build Entity	$ _____

B Subject to the provisions of this Agreement and Release, Owner will forthwith pay to Design-Build Entity the sum of [_____ Dollars and _____ Cents ($_____)] under the Contract, less any amounts withheld under the Contract or represented by any Notice to Withhold Funds on file with Owner as of the date of such payment.

C Design-Build Entity acknowledges and hereby agrees that there are no unresolved or outstanding claims in dispute against Owner arising from the Contract, except for the claims described in Paragraph 1.03(E) of this Document 00 6530. It is the intention of the parties in executing this Agreement and Release that this Agreement and Release shall be effective as a full, final and general release of all claims, demands, actions, causes of action, obligations, costs, expenses, damages, losses and liabilities of Design-Build Entity against Owner, and all if its agents, employees, consultants, inspectors, representatives, assignees and transferees, except for the Disputed Claims set forth in Paragraph 1.03(E) of this Document 00 6530. Nothing in this Agreement and Release shall limit or modify Design-Build Entity's continuing obligations described in Paragraph 6 of this Document 00 6530.

D The following claims submitted under Document 00 7253 (General Conditions), Article 12, are disputed (hereinafter, the "Disputed Claims") and are specifically excluded from the operation of this Agreement and Release.

E **[Insert information in Chart below, affix attachment if necessary]**

CLAIM NO.	DATE SUBMITTED	DESCRIPTION OF CLAIM	AMOUNT OF CLAIM

F Consistent with California Public Contract Code §7100, Design-Build Entity hereby agrees that, in consideration of the payment set forth in Paragraph 1.03(B) of this Document 00 6530, Design-Build Entity hereby releases and forever discharges Owner, and all of its agents, employees, consultants, inspectors, assignees and transferees from any and all liability, claims, demands, actions or causes of action of whatever kind or nature arising out of or in any way concerned with the Work under the Contract.

G Guarantees and warranties for the Work, and any other continuing obligation of Design-Build Entity, shall remain in full force and effect as specified in the Contract Documents.

H Design-Build Entity shall immediately defend, indemnify and hold harmless Owner, any of the Owner's Representatives, Project Manager, and all of their agents, employees, consultants, inspectors, assignees and transferees, from any and all claims, demands, actions, causes of action, obligations, costs, expenses, damages, losses and liabilities that may be asserted against them by any of Design-Build Entity's suppliers and/or Subcontractors of any tier and/or any suppliers to them for any and all labor, materials, supplies and equipment used, or contemplated to be used in the performance of the Contract, except for the Disputed Claims set forth in Paragraph 1.03(E) of this Document 00 6530.

1.04 Design-Build Entity hereby waives the provisions of California Civil Code §1542, which provide as follows:

> **A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER, MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR.**

1.05 The provisions of this Agreement and Release are contractual in nature and not mere recitals and shall be considered independent and severable, and if any such provision or any part thereof shall be at any time held invalid in whole or in part under any federal, state, county, municipal or other law, ruling, or regulation, then such provision, or part thereof shall remain in force and effect only to the extent permitted by law, and the remaining provisions of this Agreement and Release shall also remain in full force and effect, and shall be enforceable.

1.06 Design-Build Entity represents and warrants that it is the true and lawful owner of all claims and other matters released pursuant to this Agreement and Release, and that it has full right, title and authority to enter into this instrument. Each party represents and warrants that it has been represented by counsel of its own choosing in connection with this Agreement and Release.

1.07 All rights of Owner shall survive completion of the Work or termination of the Contract, and execution of this Agreement and Release.

*** * * CAUTION: THIS IS A RELEASE - READ BEFORE EXECUTING * * ***

OWNER: COUNTY OF KERN

By: _____
Signature

Name: _____
Print

Its: _____
Title

ATTEST:

_____
Secretary

_____
Print

DESIGN-BUILD ENTITY:

By: _____
Signature

Name: _____
Print

Its: _____
Title

ATTEST:

By: _____
Signature

Name: _____
Print

Its: _____
Title

REVIEWED AS TO FORM:

Dated: _____, [202__]

By: _____
Counsel for Owner

Name: _____
Print

END OF DOCUMENT

DOCUMENT 00 6536

GUARANTY

TO: The COUNTY OF KERN ("Owner"), for construction of THE KERN COUNTY BHRS PSYCHIATRIC HEALTH FACILITY PROJECT located at 616-806 Workman Street, Bakersfield, California.

The undersigned guarantees all construction performed on this Project and also guarantees all material and equipment incorporated therein.

Design-Build Entity hereby grants to Owner for a period of ten (10) years following the date of Final Acceptance of the Work completed, its unconditional warranty of the quality and adequacy of all of the Work including, without limitation, all design, engineering, professional services, labor, materials and equipment provided by Design-Build Entity and its Subcontractors of all tiers in connection with the Work.

Neither final payment nor use nor occupancy of the Work performed by the Design-Build Entity shall constitute an acceptance of Work not done in accordance with this Guaranty or relieve Design-Build Entity of liability in respect to any express warranties or responsibilities for faulty materials or workmanship. Design-Build Entity shall remedy any defects in the Work and pay for any damage resulting therefrom, which shall appear within one year, or longer if specified, from the date of Final Acceptance of the Work completed.

If within ten (10) years after the date of Final Acceptance of the Work completed, or such longer period of time as may be prescribed by laws or regulations, or by the terms of Contract Documents, any Work is found to be Defective, Design-Build Entity shall promptly, without cost to Owner and in accordance with Owner's written instructions, correct such Defective Work. Design-Build Entity shall remove any Defective Work rejected by Owner and replace it with Work that is not Defective, and satisfactorily correct or remove and replace any damage to other Work or the work of others resulting therefrom. If Design-Build Entity fails to promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the Defective Work corrected or the rejected Work removed and replaced. Design-Build Entity shall pay for all claims, costs, losses and damages caused by or resulting from such removal and replacement. Where Design-Build Entity fails to correct Defective Work, or defects are discovered outside the correction period, Owner shall have all rights and remedies granted by law.

Inspection of the Work shall not relieve Design-Build Entity of any of its obligations under the Contract Documents. Even though equipment, materials, or Work required to be provided under the Contract Documents have been inspected, accepted, and estimated for payment, Design-Build Entity shall, at its own expense, replace or repair any such equipment, material, or Work found to be Defective or otherwise not to comply with the requirements of the Contract Documents up to the end of the guaranty period.

All abbreviations and definitions of terms used in this Agreement shall have the meanings set forth in the Contract Documents.

The foregoing Guaranty is in addition to any other warranties of Design-Build Entity contained in the Contract Documents, and not in lieu of, any and all other liability imposed on Design-Build Entity under the Contract Documents and at law with respect to Design-Build Entity's duties, obligations, and performance under the Contract Documents. In the event of any conflict or inconsistency between the terms of this Guaranty and any warranty or obligation of the Design-Build Entity under the Contract Documents or at law, such inconsistency or conflict shall be resolved in favor of the higher level of obligation of the Design-Build Entity.

Date: _____, 20___

_____
Design-Build Entity's name

By: _____
Signature

_____
Print Name

_____
Title

_____
Street Address

_____
City, State, Zip code

END OF DOCUMENT

DOCUMENT 00 7253

GENERAL CONDITIONS
(Design-Build – AB 900)

TABLE OF CONTENTS

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DOCUMENT 00 7253

GENERAL CONDITIONS

(Design-Build - AB 900)

ARTICLE 1 – GENERAL

1.01 Defined Terms

A. All abbreviations and definitions of terms used and not otherwise defined in this Document 00 7253 are set forth in Section 01 4200 (References and Definitions).

B. This Document 00 7253 subdivides at first level into Articles, and then into paragraphs, then into subparagraphs.

1.02 Documents

A. Contract Documents are complementary; what is called for by one is as binding as if called for by all.

B. Contract Documents shall not be construed to create a contractual relationship of any kind between (1) Architect/Engineer or any Owner Representative and Design-Build Entity; (2) Owner and/or its representatives and (except in the event of assignment upon termination) a Subcontractor, sub-Subcontractor, or supplier of any Project labor, materials, or equipment; or (3) between any persons or entities other than Owner and Design-Build Entity.

C. Owner shall, however, be deemed to be an intended third-party beneficiary of subcontracts and purchase orders of any tier, and each such agreement shall so provide.

1.03 Precedence Of Documents

A. In the case of discrepancy or ambiguity in the Contract Documents, the following order of precedence shall prevail:

1. Modifications in inverse chronological order (i.e., most recent first), and in the same order as specific portions they are modifying;
2. Division 00 5000 Series Documents, including but not limited to, Document 00 5200 (Agreement), and terms and conditions referenced therein, and such other documents within the Division 00 5000 Series (i.e., starting at 00 5200 and continuing to 00 5299) and the Division 00 6000 Series Documents (i.e., starting at 00 6000 and continuing to 00 6999);
3. Division 00 7300 Series Documents, including but not limited to, Supplementary Conditions, and any Division 00 8000 Series Documents (i.e., starting at 00 8000 and continuing to 00 8999);
4. Division 00 7200 Series Documents, including but not limited to, Document 00 7253 (General Conditions-Design-Build);
5. Bridging Documents;
6. Division 01 (General Requirements) Series Specifications;

7. Technical Specifications starting with Division 02 Series and continuing to Division 33 Series;
8. Drawings;
9. Written numbers over figures, unless obviously incorrect;
10. Figured dimensions over scaled dimensions;
11. Large-scale drawings over small-scale drawings;
12. Specific details over standard or typical details.

B. Within the Bridging Documents:

1. **Design Narratives** control over;
2. **Narrative Equipment Lists,** which control over;
3. **Specifications,** which control over;
4. **Drawings**, which in the event of conflicts with drawings, the order of precedence will be as follows:
   - **Schedules** when identified as such will control over all other portions of the drawings;
   - **Specific Notes** will control over all other notes and all other portions of the drawings except schedules;
   - **Larger scale drawings** will control over smaller scale drawings
   - **Figured or Numerical dimensions** will control over dimensions obtained by scaling
   - **Room Data Sheets**

C. Any conflict between Drawings and Specifications above Division 01 will be resolved in favor of the document of the latest date (i.e., the most recent document), and if the dates are the same or not determinable, then in favor of Specifications.

D. Any conflict between a bill or list of materials shown in the Contract Documents and the actual quantities required to complete Work required by Contract Documents, will be resolved in favor of the actual quantities.

E. In the event the Specifications include divisions above Division 33 (e.g., Division 34 and above), then such divisions shall be included within the Contract Documents unless identified otherwise.

ARTICLE 2 – SCOPE OF DESIGN-BUILD OBLIGATION

2.01 All-Inclusive Design-Build Obligation

A. Except as may be specifically limited and/or excluded in Document 00 5201 (Bridging Documents) and Section 01 1100 (Summary of Work), Design-Build Entity shall provide a complete, legally operable, functional and maintainable Project, in accordance with the Contract Documents, including providing, furnishing, and performing all necessary design, engineering, architectural and construction Services and providing and furnishing all necessary supplies, housing, materials and equipment, and all necessary supervision, labor, and services required for the engineering, design, procurement, quality assurance and inspection, construction, installation, startup, checkout, testing, site cleanup and for the training of Owner's personnel, all in conformity with the requirements, legal

requirements, criteria, performance guarantees, and warranties set forth in the Contract Documents, for a complete, full and legally operable Project in full conformance with Contract requirements. The signature and seal of a licensed engineer(s) or architect(s) shall be obtained as necessary for compliance with legal requirements.

B. Design-Build Entity's professional architectural and engineering services shall include without limitation, all architectural services and all civil, electrical, fire protection, mechanical, structural engineering, landscape, cost estimating, planning and coordination services required to complete the Project and to perform Design-Build Entity's obligations under the Contract Documents ("Services"). Design-Build Entity and its Designers and other consultants shall possess all necessary training, licenses and permits to perform the Services, and performance of the Services shall conform to the standard of practice of a professional with substantial experience and expertise in performing professional services of like nature and complexity of the Services. Design-Build Entity's licensed architectural and engineering Designers shall owe a duty of care to Owner in performing their architectural and engineering portions of the Services.

C. No construction or alteration of any Owner facility under the Contract Documents shall commence prior to the receipt of the written acceptance of the final Drawings and Specifications from the Owner and, as required, approvals from County and City Fire Marshals (if applicable) and all authorities having jurisdiction. Design-Build Entity shall design and construct complete, operational, a fully functional and legally operable project, in full compliance with all applicable laws, codes and standards (both public and private), including but not limited to, the standards included and warranties expressed in the Contract Documents and manufacturer's recommendations pertaining to individual items of equipment or systems. Design-Build Entity shall have full responsibility to manage, coordinate and comply with requirements of authorities with jurisdiction, including but not limited to, City and County building officials.

D. Without limiting any other provision of Contract Documents, Design-Build Entity must design and construct the Project to enable conformance with operational, fire and life safety, and physical plant standards contained in Titles 15 and 24, California Code of Regulations (CCR).

2.02 Description Of Design Requirements

A. Without limiting the generality of the foregoing paragraphs, Design-Build Entity and its Designers shall prepare preliminary designs, interim designs, complete designs, engineering, working drawings, shop drawings and generate drawings and/or engineering analysis setting forth in detail the specifications and requirements for the purchasing and procurement of the services, materials and equipment, all necessary utilities, natural gas and water supply for construction, and for the construction of the complete, operational, legally operable and fully functional Project and shall furnish the services of all necessary supervisors, architects, engineers, designers, draftsmen, and other personnel necessary for the preparation of those drawings and specifications required for the Work. The design shall include all disciplines necessary to design and engineer the Project, including but not limited to, architectural, civil, structural, mechanical, electrical, instrumentation and control work.

B. Design-Build Entity shall coordinate the services of all architectural and engineering disciplines and other Designers involved in completing the Work, including without limitation, conducting design coordination meetings with Designers in the frequency necessary for Design-Build Entity to meet its design coordination obligations herein and all other provisions of Contract Documents.

C. All professional services shall be performed with the degree of care, skill, and responsibility customary among such licensed personnel with substantial experience and expertise in work similar to the Work of this Contract.

D. Design-Build Entity and its Designers' design shall provide that all surfaces, fixtures and equipment are readily accessible for maintenance, repair or replacement by ladders, power lifts, cat walks, and the like without exceeding the design loads of the floors, roofs, ceilings, and that such access is in conformance with Cal OSHA. All drawings, specifications, structural and electrical design calculations, site data, cost estimates and any other deliverable required by State or Federal law shall comply with State and federal standards. Design-Build Entity shall comply with any other requirements of public or private authorities with jurisdiction over the Project, the Drawings and Specifications, and tie-ins to the Project. Design-Build Entity shall comply with the applicable standard of care when preparing Drawings and Specifications to comply with applicable building codes, ordinances, statutes, laws, standards, governmental regulations and private restrictions, including necessary tie-ins, applicable to the Project and the Services, including, but not limited to, those listed in this Contract, all environmental, energy conservation, energy tie-in, and disabled access requirements, regulations and standards of the County and City Fire Marshals (if applicable) and all other authorities having jurisdiction over the Project.

E. Design-Build Entity shall attend meetings with the community, representatives of Owner, interested parties governmental entities, as necessary, and provide information and diagrams to fully describe the intended design and the Project.

2.03 Owner's Right To Review

A. Owner at all times shall have the right (but not the duty) to review Design-Build Entity's design work, whether performed by Design-Build Entity or Designers of any tier, and whether in a final or preliminary form, to determine progress and conformance to the requirements of Contract Documents.

B. In the event Owner should ever dispute the conformance of any design work (at any stage) with the intent of the Bridging Documents, then Owner's determination shall control and Design-Build Entity and/or its Designers shall perform the disputed design services and/or work to completion in accord with the Owner's determination. Design-Build Entity shall, however, retain its rights under the procedure in this Document 00 7253 (General Conditions) Article 12 for claims and disputes, and Design-Build Entity may under that procedure, in its name, advance any claim of any Designer.

2.04 Description Of Construction Obligations

A. Without limiting the generality of the foregoing paragraph, Design-Build Entity shall provide, at a minimum, the following Services and materials and equipment, provided, however, that these sections shall not be construed in any way to limit Design-Build

Entity's obligations hereunder to design, engineer, furnish, construct, checkout, startup, and test a complete, operable and maintainable Project in accordance with the provisions of the Contract Documents.

B. Design-Build Entity shall furnish the services of all personnel, including supervisors, engineers, designers and draftsmen necessary for the Work. Except as otherwise provided in Contract Documents, Design-Build Entity shall obtain, at Design-Build Entity's expense, all governmental and private approvals, licenses, and permits required to complete the Work, including but not limited to, all aspects of coordination and approvals of any type from state and / or local agencies and authorities with jurisdiction, for example and not by way of limitation, City and County building officials.

C. Design-Build Entity shall provide, install and complete as specified and pay for all labor, materials and equipment, tools, supplies, construction equipment and machinery, construction, start-up and testing (except that testing to be provided by the Owner), site cleanup, utilities, transportation, and other facilities and services (including any temporary materials, equipment, supplies and facilities) necessary for the proper execution and completion of the complete, operational, and fully functional Project including required permanent interconnection for electricity, and any other utilities and demonstration of fully satisfactory operation of all systems and equipment.

D. Design-Build Entity shall provide all equipment and materials and furnish the services of all supervision, buyers, inspectors (other than the IOR, and any Owner employee-inspector acting solely on Owner's behalf), expeditors, and other personnel necessary to procure all materials and equipment for the construction of the Project. Design-Build Entity shall provide, install, complete and pay for all labor, materials and equipment, tools, supplies, construction equipment and machinery, construction utilities (including all water, power and sanitary facilities), transportation (including road or other infrastructure and improvements on and off the Site), customs clearance, quality assurance, and other facilities and services (including any temporary or consumable materials, water, fuels, and electricity necessary for the proper execution and completion of the Work, including any of the utilities, as required). Design-Build Entity shall maintain all materials and equipment in accordance with manufacturer's requirements while such materials and equipment are in transit or care and custody of the Design-Build Entity. Design-Build Entity shall supervise and direct the Work, and shall furnish the services of all supervisors, forepersons, skilled and unskilled labor, and all other personnel necessary to design and construct the complete, operational, legally operable and fully functional Project and appurtenant projects described in the Contract Documents. Without limiting the generality of the foregoing, Design-Build Entity shall provide any and all construction required for the temporary upgrading of any public or private road which is inadequate for the performance of the Work, temporarily relocate any interference in public or private roadways necessary for the transportation of equipment and materials, and repair all excessive damage to, or deterioration (other than fair wear and tear) of, any public or private road which arises out of the performance of the Work.

E. Design-Build Entity shall provide all Project-related insurance, except as otherwise provided by Contract Documents.

F. Design-Build Entity shall supervise and direct Work, and shall furnish the services of all supervisors, foremen, skilled and unskilled labor, quality control and all other personnel in sufficient quantities and with sufficient skills necessary to perform the Services in accordance with the Contract Documents. At Owner's request, Design-Build Entity shall replace, at Design-Build Entity's expense, any individual if it is determined by Owner and Design-Build Entity that such individual's continued presence would jeopardize the quality or timely completion of the Work. Whenever required by applicable laws or the Contract Documents, Design-Build Entity shall employ licensed personnel as necessary to perform engineering, design, architectural, or other professional services in the performance of the Work.

G. Design-Build Entity shall be solely responsible for all construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work under the Contract Documents, and Owner shall not be responsible for or exercise any control over the actions or omissions of Design-Build Entity, any supplier, or any of their employees or agents performing any of the Work or Design-Build Entity's warranty obligations. Design-Build Entity shall prosecute the Work continuously and diligently and complete the Work in accordance with all requirements of the Contract Documents.

H. Design-Build Entity shall coordinate ingress and egress to and from the Site so as to minimize disruption to the Work and to traffic in the vicinity of the Site.

I. Design-Build Entity shall be responsible for the layout of the Work and shall perform all necessary surveying during the construction of the Projects. Design-Build Entity shall take field measurements, verify all field conditions, and carefully compare all of the foregoing and other available information with Contract Documents. The accuracy of all grades, elevations, alignments, and plumbing of any structures and the location of all facilities described in the final plans and specifications shall be the responsibility of the Design-Build Entity. Design-Build Entity shall preserve all permanent survey construction monuments and benchmarks. Prior to the final completion date, Design-Build Entity shall accurately correct all Project documents to as-built conditions and deliver to Owner these as-built documents in accordance with the Contract Documents. Such documents shall show the location of the Project and shall show all related easements, improvement, utilities and rights of way above and below ground, on and off the Site, as of the date of delivery of such documents. Such documents shall also show the dimensions and the distances to the nearest benchmarks.

J. Design-Build Entity shall provide appropriate installation and startup representatives from suppliers of major equipment and control systems, all necessary supervising personnel, all equipment, tools, construction and temporary material, and all labor for checkout, startup and testing. Design-Build Entity shall be responsible for checkout, startup and testing of the Project and shall carry out those activities in accordance with all applicable codes and legal requirements, startup and checkout requirements and procedures as set forth in the Contract Documents or established by any Owner-engaged Commissioning Agent.

K. In addition to all required safety and warning signs, Design-Build Entity may install two (2) large construction signs on the Site without Owner's express written consent.

L. Design-Build Entity shall be responsible for Site security until Final Completion, or termination of the Work. Such security shall include, to the extent reasonably necessary, barriers, lighting, controlled access, and other measures required to prevent vandalism, theft, and danger to personnel, the Project, materials and equipment.

M. Design-Build Entity shall prepare or cause to be prepared and shall furnish to Owner all drawing logs, drawings, manufacturer's drawings and data, supplier manuals and operating manuals in accordance with the Contract Documents.

N. Design-Build Entity shall ensure that Owner and its representatives shall, at all times, have access to the Project for all purposes. In order to allow Owner and its representatives to be present, Design-Build Entity shall give Owner at least three (3) days advance notice of any system or equipment checkout or testing. If Owner desires access to any places where work is being performed or from which materials and equipment are being obtained, Design-Build Entity shall provide or arrange reasonable access thereto and shall provide Owner reasonable advanced notice of any factory tests or other off site tests. Design-Build Entity shall maintain the Site in a safe condition to permit Owner and any person authorized in writing by Owner to inspect and review all field work during working hours, including materials and equipment, installation, calibration, startup and testing.

O. As part of the procurement of equipment, to be determined by Owner and Design-Build Entity during Project Design, Design-Build Entity shall provide to Owner a list of recommended operating spare parts, which list shall include all relevant costs and ordering lead time information with terms and conditions. If requested, Design-Build Entity shall procure such operating spare parts from Suppliers, as requested by Owner, on behalf of Owner. The cost of such operating spare parts shall be covered by Contract Modification.

P. Design-Build Entity shall perform all services and activities necessary to comply with all applicable governmental regulations and requirements and to obtain all applicable governmental reviews and approvals for and regarding the Work.

Q. When any equipment or portion of the Work is damaged, Design-Build Entity shall inform Owner as soon as possible and provide Owner a damage report detailing such occurrence, any required repairs, and the estimated duration of such repairs.

R. Except for special inspections performed by Owner, Design-Build Entity shall provide to Owner all tests and measurements, laboratory analyses, and reports made or prepared in connection with the Work.

S. Design-Build Entity's progress schedules shall include design services, deliverables, milestones and interfaces with construction.

T. Design-Build Entity shall be responsible for all labor relations matters relative to the Work on the Site and shall at all times use all reasonable efforts to maintain harmony among all workers employed in connection with the Work on the Site.

ARTICLE 3 – REQUIRED INVESTIGATIONS

3.01 Required Investigations –All Projects

A. For all Projects, and prior to submitting a Proposal and as a condition of executing Document 00 5200 (Agreement), Design-Build Entity shall make reasonable efforts to investigate fully the Work of the Contract per the requirements of this Article.

B. Design-Build Entity shall visit the Site, examine thoroughly and understand fully the nature and extent of the Contract Documents, Work, Site, locality, actual conditions and as-built conditions, and all other information made available before executing the Work Authorization. Design-Build Entity's investigation shall include, without limitation, requesting and thoroughly examining of all reports of exploration and tests of subsurface conditions, as-built drawings, drawings, product specification(s) or reports, made available by Owner for contracting purposes or during Design-Build Entity's pre-construction services, of existing above ground and (to the extent applicable) below ground conditions (together, "Existing Conditions Data"), including, as applicable, Underground Facilities, geotechnical data, as-built data, utility surveys, record documents of all types, hazardous materials surveys, or similar materials which may appear in the Contract Documents, and all local conditions, and federal, state and local laws and regulations that in any manner may affect cost, progress, performance or furnishing of Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Design-Build Entity and safety precautions and programs incident thereto.

C. Also, Design-Build Entity shall: (i.) completely and thoroughly correlate all Existing Conditions Data, and shall provide Owner with prompt written notice of all conflicts, errors, ambiguities, or discrepancies of any type, that it discovered in or among the Contract Documents and the Existing Conditions Data, and (ii.) subject to Owner's approval conduct any such additional or supplementary examinations, investigations, explorations, tests, studies and data compilations, concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site or otherwise, which may affect cost, progress, performance or furnishing of Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Design-Build Entity and safety precautions and programs incident thereto or which Design-Build Entity deems necessary to determine that it could perform and furnish the Work in accordance with the time, price and other terms and conditions of Contract Documents.

D. By executing Document 00 5200 (Agreement), Design-Build Entity agrees that Owner has responded to and resolved any conflict, error or ambiguity in the Existing Conditions Data and Contract Documents that Design-Build Entity has brought to Owner's attention. During performance of the Contract, Design-Build Entity will be charged with knowledge of all information that it should have learned in performing its required pre-construction services and pre-construction investigations and other obligations, and shall not be entitled to Change Orders (time or compensation) due to any information, error, inconsistency, omission, or conditions that Design-Build Entity should have known as a part of this Work. Design-Build Entity shall be responsible for the resultant losses, including, without limitation, the cost of correcting Defective Work.

E. In performing the Work of the Contract Documents, Design-Build Entity shall rely on the results of its own independent investigations of existing conditions and not on information provided by Owner. Design-Build Entity shall conduct such further investigations of existing conditions as are necessary for Design-Build Entity to perform the Services and shall advise Owner of any further design or other services necessary to complete the Project.

3.02 Required Investigations—Renovation Projects

A. For Projects involving renovation of existing facilities, Design-Build Entity shall verify by independent investigation all such aboveground and as-built conditions, and bring any discrepancies to Owner's attention through written question. In executing Document 00 5200 (Agreement), Design-Build Entity shall rely on the results of its own independent investigation and shall not rely on Owner-supplied information regarding aboveground conditions and as-built conditions, and Design-Build Entity shall accept full responsibility for its verification work sufficient to complete the Work as intended.

B. Regarding aboveground and as-built conditions shown on the Contract Documents or supplied by Owner, such information has been compiled in good faith, however, Design-Build Entity must independently verify such information. Design-Build Entity shall also consider fully the fact that information supplied regarding existing above ground and as-built conditions at or contiguous to the Site is in many cases based on information furnished to Owner by others (e.g., the prior owner or builders), and that due to their age or their chain of custody since preparation, may not meet current industry standards for accuracy. Owner does not expressly or impliedly warrant or represent that information as to aboveground conditions or as-built conditions indicated in the Contract Documents or supplied by Owner, is correctly shown or indicated, or otherwise complete for construction purposes.

3.03 Required Investigations—Excavation and Utilities Relocation Projects

A. For Projects involving excavation or relocation of existing utilities, Design-Build Entity shall make reasonable efforts to verify information regarding Underground Facilities, including but not limited to, requesting additional information or verification of information as necessary.

B. Because of the nature and location of Owner and the Project, the existence of Underground Facilities is deemed inherent in the Work of the Contract, as is the fact that Underground Facilities are not always accurately shown or completely shown on as-built records, both as to their depth and location. Design-Build Entity shall, therefore, take care to note the existence and potential existence of Underground Facilities, in particular, above and below grade structures, drainage lines, storm drains, sewers, water, gas, electrical, chemical, hot water, and other similar items and utilities. Design-Build Entity shall carefully consider all supplied information, request additional information Design-Build Entity may deem necessary, and visually inspect the Site for above ground indications of Underground Facilities (such as, for example not by way of limitation, the existence of existing service laterals, appurtenances or other types of utilities, indicated by the presence of an underground transmission main or other visible facilities, such as buildings, new asphalt, meters and junction boxes, on or adjacent to the Site). Design-Build Entity shall also consider fully the fact that information supplied regarding existing

Underground Facilities at or contiguous to the Site is in many cases based on information furnished to Owner by others (e.g., the builders of such Underground Facilities or others), and that due to their age or their chain of custody since preparation, may not meet current industry standards for accuracy.

C. Design-Build Entity shall also consider local underground conditions and typical practices for Underground Facilities, either through its own direct knowledge or through its subcontractors, and fully consider this knowledge in assessing the existing information and the reasonableness of its reliance.

D. Regarding subsurface conditions other than Underground Facilities shown on the Contract Documents or otherwise supplied by Owner, Design-Build Entity may rely only upon the general accuracy of actual reported depths, actual reported character of materials, actual reported soil types, actual reported water conditions, or actual obstructions shown or indicated in the Contract Documents. Owner is not responsible for the completeness of any subsurface condition information, Design-Build Entity's conclusions or opinions drawn from any subsurface condition information, or subsurface conditions that are not specifically shown. (For example, Owner is not responsible for soil conditions in areas contiguous to areas where a subsurface condition is shown.)

ARTICLE 4 – CONTRACT AWARD AND COMMENCEMENT OF THE WORK

4.01 Award Of Contract

A. Owner will make the Award of Contract by issuing a Notice of Award.

B. As a condition to Owner signing Document 00 5200 (Agreement), however, Design-Build Entity shall deliver to Owner the executed agreements, forms, bonds and insurance documents required by Document 00 1119 (Request for Proposals) and Document 00 4200 (Proposal Form) in the required quantities and within the required times.

C. Bonds shall specifically include:

1. Corporate surety bond, in the form of Document 00 6113.13 (Construction Performance Bond), in the penal sum of 100% of the Design-Build Entity's Proposal as accepted, to guaranty faithful performance of the Work; and
2. Corporate surety bond, in the form of Document 00 6113.16 (Construction Labor and Material Payment Bond), in the penal sum of 100% of the Design-Build Entity's Proposal as accepted, to guaranty payment of wages for services engaged and of bills contracted for materials, supplies, and equipment used in performance of Contract Documents.

D. Sureties on payment and performance bonds shall be satisfactory to Owner. Corporate sureties on these bonds and on bonds accompanying Proposals shall be duly licensed to do business in the State of California and shall have an A.M. Best Company financial rating of A, VIII or better.

E. Document 00 7316 (Supplementary Condition – Insurance and Indemnification) incorporated herein by this reference, provides insurance requirements.

4.02 Commencement Of Design and Construction Work

A. When Design-Build Entity and Owner have signed the Contract Documents, Owner will serve a Notice to Proceed With Design Services (Document 00 55001 (Notice to Proceed with Design Services)) upon Design-Build Entity to that effect. When Design-Build Entity has obtained all required approvals (including without limitation from Kern County) to begin actual on-Site construction of all or a portion of the Work, Owner will issue a Notice to Proceed With Construction (Document 00 5500 (Notice of Intent to Award)) on Design-Build Entity. Any Notice to Proceed shall be issued by depositing it in a post office or post office box regularly maintained by United States Postal Service in a pre-paid wrapper directed to Design-Build Entity at legal address or (at Owner's option) by delivery by other means authorized for notices under the Contract documents at legal address. No construction Work may be performed at the Site until Owner has issued Notice to Proceed With Construction.

B. The start date for Contract Time shall be on the date indicated in the applicable Notice to Proceed. If no date is indicated, the start date for Contract Time shall be the 15th Day from the date that Design-Build Entity receives, by hand or overnight delivery or facsimile transmission, Owner's written Notice to Proceed, unless the Notice to Proceed is served by mail only, in which case the start date for Contract Time shall be the fifth Day following the mailing date. The total number of Days for completion of the Work under the Contract Documents shall be as provided in Document 00 5200 (Agreement).

C. Delivery by other means authorized for notices under the Contract documents at legal address.

D. The start date for Contract Time shall be on the date indicated in the applicable Notice to Proceed. If no date is indicated, the start date for Contract Time shall be the 15th Day from the date that Design-Build Entity receives, by hand or overnight delivery or facsimile transmission, Owner's written Notice to Proceed, unless the Notice to Proceed is served by mail only, in which case the start date for Contract Time shall be the fifth Day following the mailing date. The total number of Days for completion of the Work under the Contract Documents shall be as provided in Document 00 5200 (Agreement).

4.03 Subcontractors

A. All subcontracts that were not listed by the Design-Build Entity in its Proposal shall be awarded by the Design-Build Entity in accordance with the Contract Documents.

B. Design-Build Entity shall, at a minimum, do all of the following:

1. Provide public notice of the availability of work to be subcontracted.
2. Provide a fixed date and time on which the subcontracted work will be awarded.
3. If more than one subcontractor that was not listed by the Design-Build Entity in its Proposal is to be awarded by the Design-Build Entity, the Design-Build Entity may provide multiple listing and award dates as necessary for completion of the Project Work, according to the schedule developed in accordance with Section 01 1102 (Summary of Work – Design-Build Contractor Services).

4. With Owner's concurrence and in compliance with all applicable legal, regulatory and professional standards and Contract Documents requirements), Design-Build Entity may release design packages for construction to properly awarded design-build subcontractors prior to completion of Construction Documents. Owner's consent shall not be unreasonably withheld, provided, however, Design-Build Entity and its Subcontractors must complete Construction Documents and details under procedures permitting Owner rights of review and acceptance of final details sufficient to assure compliance with design intent.

C. In any contract between Design-Build Entity and a Subcontractor, and in a contract between a Subcontractor and any subcontractor thereunder, the percentage of the retention proceeds withheld may not exceed the percentage specified in the Contract Documents (not greater than 5%). If Design-Build Entity provides written notice to any Subcontractor who is not a member of Design-Build Entity's team in its Proposal, prior to or at the time the Subcontractor's bid is requested, that a bond may be required and the Subcontractor subsequently is unable or refuses to furnish a bond to Design-Build Entity, then Design-Build Entity may withhold retention proceeds in excess of the percentage specified in the Contract Documents from any payment made by Design-Build Entity to the Subcontractor.

D. Design-Build Entity shall provide Owner with additional versions of Document 00 4330 (Subcontractors List) as follows:

1. Within fourteen (14) days of award of any subcontract, a Document 00 4330 (Subcontractors List) identifying all Subcontractors not included on a prior Document 00 4330 (Subcontractors List); and
2. Before commencing any construction Work, a complete Document 00 4330 (Subcontractors List) identifying all Subcontractors, however and whenever procured.

E. All Subcontractors bidding on subcontracts shall be afforded the protections contained in Chapter 4 (commencing with Section 4100) of Part 1 of Division 2 of the Public Contract Code. Without limiting the forgoing, Design-Build Entity shall not substitute any other person or firm in place of any Subcontractor listed in the Proposal. Consistent with the Subcontractor Listing Law, Subcontractors shall not assign or transfer their subcontracts or permit them to be performed by any other Design-Build Entity without Owner's written approval. At Owner's request, Design-Build Entity shall provide Owner with a complete copy of all executed subcontracts or final commercial agreements with Subcontractors and/or suppliers.

F. Subcontract agreements shall preserve and protect the rights of Owner under the Contract Documents so that subcontracting will not prejudice such rights. To the extent of the Work to be performed by a Subcontractor, Design-Build Entity shall require the Subcontractor's written agreement (1) to be bound to the terms of Contract Documents and (2) to assume vis-à-vis Design-Build Entity all the obligations and responsibilities that Design-Build Entity assumes toward Owner under the Contract Documents. (These agreements include for example, and not by way of limitation, all warranties, claims procedures and rules governing submittals of all types to which Design-Build Entity is subject under the Contract Documents.)

G. Design-Build Entity shall provide for the assignment to Owner of all rights any Subcontractor may have against any manufacturer, supplier, or distributor for breach of warranties and guaranties relating to the Work performed by the Subcontractor under the Contract Documents.

ARTICLE 5 – BRIDGING DOCUMENTS, DRAWINGS AND SPECIFICATIONS

5.01 General

A. Bridging Documents supplied under Document 00 5201 (Bridging Documents) establish the design intent and the minimum requirements for the quality and type of materials to be used in the Project. Bridging Documents and any addenda will be used to confirm that Design-Build Entity-prepared Design Development and Construction Documents are in conformance with the design intent and the minimum requirements for the quality and type of materials to be used in the Project.

B. Design-Build Entity-prepared Construction Documents are the Drawings and Specifications for construction. Subject to all provisions of Contract Documents, Design-Build Entity shall construct the Project in accordance with those Drawings and Specifications. The warranty and other requirements in the Contract Documents (including Bridging Documents), however, shall constitute the minimum design, material, quality, workmanship and other standards required under the Contract Documents, and shall have higher precedence in case of inconsistency with the Design-Build Entity prepared Construction Documents.

C. Where Owner has specified equipment or materials, Design-Build Entity shall provide the specified equipment or materials (regardless of any Design-Build Entity contention that proposed equipment or materials meet or exceed Owner's requirements).

D. Design-Build Entity shall be fully responsible for all design errors, including without limitation all errors, inconsistencies and omissions in the Design-Build Entity-prepared Construction Documents, and shall report any such matter to Owner promptly following discovery. Design-Build Entity has full "turnkey" responsibility to deliver the fully functional, operational Project described in Document 00 5201 (Bridging Documents), as referenced in the Contract Documents.

5.02 Intent

A. Final Drawings and Specifications shall describe a functionally complete and operable Project (and all parts thereof) to be constructed in accordance with the requirements of Contract Documents and in compliance with all applicable codes and standards. Unless expressly excluded elsewhere in the Contract Documents, Design-Build Entity shall perform any work, provide services and furnish any materials or equipment that may reasonably be inferred from the requirements of Contract Documents or from prevailing custom or trade usage as being required to produce this intended result. Design-Build Entity shall furnish all permits, temporary controls, machinery, tools, facilities, employee training and testing, hoisting facilities, shop drawings, storage, testing, security, transportation, disposal, the securing of all necessary or required field dimensions, the cutting or patching of existing materials, notices, documents, reports, agreements and all general conditions, seismic requirements, general requirements and incidentals and any

other items required or necessary to timely and fully complete such Work described and the results intended by Contract Documents and, in particular, Drawings and Specifications and (as applicable) Bridging Documents.

B. Design-Build Entity shall interpret Bridging Documents words or phrases used to describe Work (including services), materials or equipment that have well-known technical or construction industry or trade meaning in accordance with that meaning. Bridging Documents' intent specifically includes the intent to require construction that complies with all applicable laws, codes and standards.

C. Divisions and Specification Sections and the identification on any Bridging Documents shall not control Design-Build Entity in preparing final Construction Documents, dividing Work among Subcontractors or suppliers or delineating the Work to be performed by any specific trade.

5.03 Drawing Details

A. A typical or representative detail on Drawings shall constitute the standard for workmanship and material throughout corresponding parts of Work, as long as it otherwise complies with all Bridging Documents requirements. Where necessary, and where reasonably inferable from Drawings, Design-Build Entity shall adapt such representative detail for application to such corresponding parts of Work. If Owner requests, the details of such adaptation shall be subject to prior approval by Owner. Repetitive features shown in outline on Drawings which otherwise comply with Bridging Documents shall be in exact accordance with corresponding features completely shown.

5.04 Interpretation Of Bridging Documents

A. Should any discrepancy appear or any dispute arise as to the importance of anything contained in Bridging Documents, or should Design-Build Entity have any questions or requests relating to Bridging Documents or any Contract Document for which Owner is responsible under the Contract Documents, Design-Build Entity shall refer the matter to Owner, in writing. Owner will issue with reasonable promptness written responses, clarifications or interpretations as Owner may determine necessary, which shall be consistent with the intent of and be reasonably inferable from Contract Documents. Such written clarifications or interpretations shall be binding upon Design-Build Entity. If Design-Build Entity believes that a written response, clarification or interpretation justifies an adjustment in Contract Sum, Design-Build Entity shall give Owner prompt written notice as provided in Section 01 2600 (Modification Procedures and Pricing of Changed Work). If the parties are unable to agree to the amount or extent of the adjustment, if any, then Design-Build Entity shall perform the Work in conformance with Owner's response, clarification, or interpretation and may make a written claim for the adjustment as provided in Article 12 of this Document 00 7253.

5.05 Checking Of Drawings

A. Before undertaking each part of construction Work, Design-Build Entity shall carefully study and compare Contract Documents and check and verify pertinent figures shown in the Contract Documents and all applicable field measurements. Design-Build Entity shall be responsible for all errors, except for those attributable to Contract Documents for which

Owner is responsible and which could not have been avoided even by such comparison. Unless obviously incorrect or otherwise expressly provided, figures shown on final Drawings shall be followed; Design-Build Entity shall not scale measurements. Design-Build Entity shall promptly report to Owner, in writing, any conflict, error, ambiguity or discrepancy that Design-Build Entity may discover in any Contract Document, along with (1) an indication of whether Owner or Design-Build Entity is responsible for that Contract Documents, and (2) Design-Build Entity's proposed resolution.

5.06 Standards To Apply Where Specifications Are Not Furnished

A. Wherever in the Contract Documents (including without limitation Bridging Documents), or in any orders given by Owner, it is provided that Design-Build Entity shall furnish materials or manufactured articles or shall do work for which no detailed or performance specifications are set forth, and Document 00 5201 (Bridging Documents) does not otherwise establish the applicable standard, the following general specifications shall apply.

B. Design and construction shall meet the standards required to provide Owner with a first class, fully functional Project, designed and constructed in a manner consistent with the standards, equipment, materials and design, found in comparable, first class, fully functional, contemporary facilities. Reference facilities identified in Document 00 5201 (Bridging Documents) shall be used as the guide in this determination, but only when the Bridging Documents are otherwise silent.

C. Materials or manufactured articles shall be of the grade, in quality and workmanship, consistent with the requirements of this Contract and obtainable in the market from firms of established good reputation, or, if not ordinarily carried in stock, shall conform to the usual standards for first-class materials or articles of the kind required, with due consideration of the use to which they are to be put. Work for which no detailed specifications are set forth herein shall conform to the requirements of this subparagraph.

5.07 Deviation From Specifications And Drawings

A. Design-Build Entity shall perform Work in accordance with Drawings and Specifications. Deviations from Drawings and from the dimensions therein given, or from the Specifications, whether or not error is believed to exist, shall be made only when approved in writing by Owner. Design-Build Entity may deviate from Drawings or the dimensions given in the Drawings, and may deviate from the Specifications, only upon Owner's advance written approval of the proposed deviation, either by Change Order, Change Directive or Instruction Bulletin.

B. Change Orders changing the approved Drawings and Technical Specifications are subject to approval by Owner as provided in Article 14 of this Document 00 7253 and Section 01 2600 (Modification Procedures and Pricing of Changed Work).

C. Design-Build Entity's construction experience was a material factor in its selection as Design-Build Entity for this Project. Design-Build Entity, also, acknowledges that changes are a normal feature of construction projects. Design-Build Entity shall rely on its experience and proactively cooperate, coordinate and schedule RFI's and (as necessary) Change Requests, submittals, field questions, inspections, and document assembly, to

facilitate the prompt and efficient use of the Change Order and Change Directive procedure as necessary to prevent delay in actual field construction.

D. As set forth in Title 24, California Code of Regulations, no modification or deviation from the Contract Documents will be permitted. Design-Build Entity must perform design and construction Work in strict accordance with Contract Documents. Design-Build Entity shall review drawings and specifications developed by its subconsultants and design-build subcontractors under this Contract for compliance with the Contract Documents prior to submission to and approval by authority having jurisdiction. No order for any alteration, modification or extra which shall increase or decrease the cost of Work shall be valid unless the resulting increase or decrease in price shall have been agreed upon in writing, and the order signed by the Design-Build Entity, and certified by the authorized officer representing Owner. As appropriate, Change Orders changing the approved drawings and technical specifications are subject to approval by Kern County under the procedures prescribed in Title 24, California Code of Regulations. Deviations from Drawings and from the dimensions therein given, or from the Specifications, whether or not error is believed to exist, shall be made only when approved in writing by Owner.

5.08 Ownership And Use Of Drawings, Specifications And Contract Documents -- Ownership Of Results/Works for Hire

A. Any interest (including copyright interests) of Design-Build Entity or its Subcontractors or consultants, including Designers (together, "Sub-consultants"), in studies, reports, memoranda, computational sheets, Construction Documents, artwork, copy, posters, billboards, photographs, videotapes, audiotapes, systems designs, software, reports, diagrams, surveys, source codes, and any other original works of authorship (including electronic media) created by Design-Build Entity or its Sub-consultants in connection with the Work, shall become the property of Owner. To the extent permitted by Title 17 of the United States Code, work product produced under the Contract Documents shall be deemed works for hire and all copyrights in such works shall be the property of Owner. In the event that it is ever determined that any works created by Design-Build Entity or its Sub-consultants under the Contract Documents are not works for hire under U.S. law, Design-Build Entity hereby assigns to Owner all copyrights to such works. With Owner's prior written approval, Design-Build Entity and its Sub-consultants may retain and use copies of such works for reference and as documentation of experience and capabilities.

B. Design-Build Entity and its Sub-consultants shall, however, retain the copyright in their standard details, and grant Owner an unlimited license to use such details for all purposes reasonably related to the Project, including, without limited to, the operation, maintenance, repair, renovation, restoration, and expansion thereof. Should Owner desire to reuse any of the items specified above and not use the services of Design-Build Entity or applicable Sub-Designer, then the Owner agrees to assume any and all obligations for their reuse and, if applicable, process the same through all authorities having jurisdiction,, and Owner releases Design-Build Entity and its Sub-consultants from liability associated with the reuse.

C. Owner acknowledges that (i) any functionally required elements, such as standard space configurations, (ii) individual standard features such as windows, doors and other ordinary building components, (iii) functional elements whose design or placement is dictated by

utilitarian concerns, and (iv) any other design element which any applicable law generally excludes from the scope of a copyright, are excluded from the copyright granted to Owner.

ARTICLE 6 – CONSTRUCTION BY COUNTY OR BY SEPARATE CONTRACTORS

6.01 Owner's Right To Perform Construction And To Award Separate Contracts

A. Owner may perform with its own forces, construction or operations related to the Project. Owner may also award separate contracts in connection with other portions of the Project or other construction or operations, on the Site or areas contiguous to the Site, under conditions similar to these Contract Documents, or may have utility owners perform other work. When separate contracts are awarded for different portions of the Project or other construction or operations on the Site, the terms "Contractor" or "Design-Build Entity" in these Contract Documents shall mean the Design-Build Entity herein.

6.02 Mutual Responsibility

A. Design-Build Entity shall afford all other contractors, utility owners and Owner (if Owner is performing work with its own forces), proper and safe access to the Site, and reasonable opportunity for the installation and storage of their materials. Design-Build Entity shall ensure that the execution of its Work properly connects and coordinates with others' work, and shall cooperate with them to facilitate the progress of the Work.

B. Design-Build Entity shall coordinate its Work with the work of other separate contractors, Owner, and utility owners. Design-Build Entity shall hold coordination meetings with other contractors, Owner and its representatives, and utility owners as required by Section 01 3119 (Project Meetings).

C. Unless otherwise provided in the Contract Documents, Design-Build Entity shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. Design-Build Entity shall not endanger any work of other separate contractors, Owner or utility owners by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of Owner and the others whose work will be affected.

D. Design-Build Entity's duties and responsibilities under Article 6 of this Document 00 7253 are for the benefit of Owner and also for the benefit of such other contractors and utility owners working at the Site to the extent that there are comparable provisions for the benefit of Design-Build Entity in the direct contracts between Owner and such other contractors and utility owners.

E. To the extent that any part of Design-Build Entity's Work is to interface with work performed or installed by other contractors or utility owners, Design-Build Entity shall inspect and measure the in-place work. Design-Build Entity shall promptly report to Owner in writing any defect in in-place work that will impede or increase the cost of Design-Build Entity's interface unless corrected. Owner will require the contractor responsible for the Defective Work to make corrections so as to conform to its contract requirements, or, if the defect is the result of an error or omission in any Contract Documents for which Owner is responsible (i.e., excluding Construction Documents), issue a Change Order. If Design-Build Entity fails to measure, inspect and/or report to Owner in writing defects that are

reasonably discoverable in Contract Documents for which Owner is responsible, Design-Build Entity shall bear all costs of accomplishing the interface acceptable to Owner. This provision shall be included in any and all other contracts or subcontracts for Work to be performed where such a conflict could exist.

6.03 Owner Authority Over Coordination

A. Owner will have authority over coordination of the activities of multiple contractors in cases where Owner performs work with its own forces or contracts with others for the performance of other work on the Project, or utilities work on the Site. Owner may at any time and in its sole discretion, designate a person or entity other than Owner to have authority over the coordination of the activities among the various contractors. Owner's authority with respect to coordination of the activities of multiple contractors and utility owners shall not relieve Design-Build Entity of its obligation to other contractors and utility owners to coordinate its Work with other contractors and utility owners as specified in this Article. Design-Build Entity shall promptly notify Owner in writing when another Design-Build Entity on the Project fails to coordinate its work with the Work of Contract Documents.

B. Design-Build Entity shall suspend any part of the Work or carry on the same in such manner as directed by Owner when such suspension or prosecution is necessary to facilitate the work of other contractors or workers. No damages or claims by Design-Build Entity will be allowed if the suspension or Work change is due in whole or in part to Design-Build Entity's failure to perform its obligation to coordinate its Work with other contractors and utility owners. Damages or claims will be allowed only to the extent of fault by Owner if the suspension or Work change is due in whole or in part to another Design-Build Entity's failure to coordinate its work with Design-Build Entity, other contractors, and utility owners. Owner reserves the right to back charge Design-Build Entity for any damages or claims incurred by other contractors as a result of Design-Build Entity's failure to perform its obligations to coordinate with other contractors and utility owners. Owner may deposit the funds retained with a Court of competent jurisdiction pursuant to applicable interpleader procedures and Design-Build Entity releases Owner of further liability regarding such funds.

6.04 Owner Furnished Products

A. Where Owner procures products or materials directly, Owner's responsibilities shall include:

1. Arrange for and deliver Owner-reviewed Shop Drawings, Product Data, and Samples, to Design-Build Entity.
2. Arrange and pay for delivery to site.
3. On delivery, inspect products jointly with Design-Build Entity.
4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
5. Arrange for manufacturers' warranties, inspections, and service.

B. Where Owner procures products or materials directly, Design-Build Entity's responsibilities shall include:

1. Review Owner-reviewed Shop Drawings, Product Data, and Samples.
2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
3. Handle, store, install, and finish products.
4. Repair or replace items damaged after receipt.
5. Install into Project per Contract Documents.

ARTICLE 7 – OWNER AND PAYMENT

7.01 Owner Representative(s)

A. Owner Representative(s) will have limited authority to act on behalf of Owner as set forth in the Contract Documents. Except as otherwise provided in these Contract Documents or subsequently identified in writing by Owner, Owner will issue all communications to Design-Build Entity through Owner Representative, and Design-Build Entity shall issue all communications to Owner through Owner Representative in a written document delivered to Owner. Should any direct communications between Design-Build Entity and Owner's consultants, architects or Architect/Engineers not identified in Document 00 5200 (Agreement) occur during field visits or by telephone, Design-Build Entity shall immediately confirm them in a written document copied to Owner.

7.02 Means And Methods Of Construction

A. Subject to those rights specifically reserved in the Contract Documents, Owner will not supervise, or direct, or have control over, or be responsible for, Design-Build Entity's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or Design-Build Entity's failure to comply with laws and regulations applicable to the furnishing or performance of Work. Owner will not be responsible for Design-Build Entity's failure to perform or furnish the Work in accordance with Contract Documents.

7.03 Receipt And Processing Of Applications For Payment

A. As required by Section 01 2000 (Measurement and Payment), Design-Build Entity shall prepare the schedules, submit Applications for Payment and warrant title to all Work covered by each Application for Payment. Owner will review Design-Build Entity's Applications for Payment and Owner will and make payment thereon, and Design-Build Entity shall make payments to Subcontractors, suppliers and others, as required by Section 01 2000 (Measurement and Payment).

ARTICLE 8 – CONTROL OF THE WORK

8.01 Supervision Of Work By Design-Build Entity

A. During construction, reconstruction, repair, alteration of or addition to any detention facility, Kern County, as provided by the California Code of Regulations, shall make such inspection as in its judgment is necessary or proper for enforcement of the Act, and the

protection of the safety of inmates, supervisory personnel, and the public. If at any time as the Work progresses, prior to the issuance of the final approval, it shall be found that modifications or changes are necessary to secure safety, orders shall be by Kern County for such modifications or changes.

B. Design-Build Entity shall supervise, inspect, and direct Work competently and efficiently, devoting the attention and applying such personal skills and expertise as may be required and necessary to perform Work in accordance with Contract Documents.

C. Design-Build Entity is fully responsible for Design-Build Entity's own acts and omissions. Design-Build Entity is responsible for all acts and omissions of its Subcontractors, suppliers, Designers, and other persons and organizations performing or furnishing any of the Work, labor, materials, or equipment under a direct or indirect contract with Design-Build Entity.

D. Design-Build Entity shall be solely responsible for and have control and charge of construction means, methods, techniques, sequences and procedures, safety precautions and programs in connection with the Work. Design-Build Entity shall be responsible to see that the completed Work complies accurately with Contract Documents.

E. Design-Build Entity shall keep on the Site at all times during Work progress a competent resident Superintendent, who shall not be replaced without Owner's express written consent. The Superintendent shall be Design-Build Entity's representative at the Site and shall have complete authority to act on behalf of Design-Build Entity. All communications to and from the Superintendent shall be as binding as if given to or by Design-Build Entity.

F. Administration of design and construction shall include the following delineations of responsibilities pursuant to Title 24, California Code of Regulations. Design-Build Entity shall perform as required.

8.02 Observation Of Work By Owner

A. Owner Representative(s). Owner Representative(s) will have authority to act on behalf of Owner as set forth in the Contract Documents. Except as otherwise provided in these Contract Documents or subsequently identified in writing by Owner, Owner will issue all communications to Design-Build Entity through Owner Representative, and Design-Build Entity shall issue all communications to Owner through Owner Representative in a written document delivered to Owner. Should direct communications between Design-Build Entity and Owner's consultants or Architects occur during field visits or by telephone, Design-Build Entity shall promptly confirm them in a written document copied to Owner.

B. Means and Methods of Construction. Subject to those rights specifically reserved in the Contract Documents, Owner will not supervise, or direct, or have control over, or be responsible for, Design-Build Entity's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or Design-Build Entity's failure to comply with laws and regulations, codes, referenced standards and manufacturer's installation instructions applicable to the furnishing or performance of Work. Owner will not be responsible for Design-Build Entity's failure to perform or furnish the Work in accordance with Contract Documents.

C. In exercising its responsibilities and authorities under the Contract Documents, Owner does not assume any duties or responsibilities to any Subcontractor or supplier and does not assume any duty of care to Design-Build Entity, Design-Build Entity's Subcontractors or suppliers. Except as expressly set forth in the Contract Documents, in exercising their respective responsibilities and authorities under the Contract Documents, neither Bridging Architect nor any Owner Representative assume any duties or responsibilities to any Subcontractor, sub-Subcontractor or supplier nor assume any duty of care to Design-Build Entity or any Subcontractor, sub-Subcontractor, Designer or suppliers.

D. Work shall be performed under Owner's general observation and administration. Design-Build Entity shall comply with Owner's directions and instructions in accordance with the terms of Contract Documents, but nothing contained in these General Conditions shall be taken to relieve Design-Build Entity of any obligations or liabilities under the Contract Documents. Owner's failure to review or, upon review, failure to object to any aspect of Work reviewed, shall not be deemed a waiver or approval of any non-conforming aspect of Work.

8.03 Delegation To Consultant

A. Owner may delegate to Bridging Architect and/or other Consultant (collectively for purposes of this paragraph, "Consultant") the Owner's role (or portions thereof) under the Contract Documents to observe construction and to perform construction administration including receiving, reviewing, and responding to RFI submittals, and initial review of change order requests. When Owner so delegates these functions, Design-Build Entity must copy Owner on all writings, RFI's, submittals and communications pertaining to such delegated matters, and Owner shall have the right to affirm or disaffirm Bridging Architect or Consultant decisions and recommendations (but must do so promptly). Owner shall at all times retain the sole right to sign and approve change orders.

B. If engaged, Consultant will advise and consult with Owner, but will have authority to act on behalf of Owner only to extent provided in the Contract Documents or as set forth in writing by Owner. Consultant will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with Work. Consultant will not be responsible for or have control over the acts or omissions of Design-Build Entity, Subcontractors or their agents or employees, or any other persons performing Work.

C. Consultant may review Design-Build Entity's submittals, such as Shop Drawings, Product Data, and Samples, but only for conformance with design concept of Work and with information given in the Contract Documents.

D. Consultant may visit the Site at intervals appropriate to stage of construction to become familiar generally with the progress and quality of Work and to determine in general if Work is proceeding in accordance with Contract Documents. Based on its observations, Consultant may recommend to Owner that it disapprove or reject Work that Consultant believes to be defective or will not produce a complete Project that conforms to Contract Documents or will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by Contract Documents. Owner will also have authority to require special inspection or testing of Work, whether or not the Work is fabricated, installed or completed.

E. Consultant may conduct inspections to recommend to Owner the dates that Design-Build Entity has achieved Substantial Completion and Final Acceptance, and will receive and forward to Owner for review written warranties and related documents required by Contract Documents.

8.04 Access To Work

A. During performance of Work, Owner and its agents, officers, consultants, and employees may at any time enter upon Work, shops or studios where any part of the Work may be in preparation, or factories where any materials for use in Work are being or are to be manufactured, and Design-Build Entity shall provide proper and safe facilities for this purpose, and shall make arrangements with manufacturers to facilitate inspection of their processes and products to such extent as Owner's interests may require. Other contractors performing work for Owner may also enter upon Work for all purposes required by their respective contracts. Subject to the rights reserved in the Contract Documents, Design-Build Entity shall have sole care, custody, and control of the Site and its Work areas.

B. Owner may, at any time, and from time to time, during the performance of the Work, enter the Work Site for the for the purpose of installing any necessary work by Owner labor or other contracts, and for any other purpose in connection with the installation of facilities. In doing so, Owner shall endeavor not to interfere with Design-Build Entity and Design-Build Entity shall not interfere with other work being done by or on behalf of Owner.

C. If, prior to completion and final acceptance of all the Work, Owner takes possession of any structure or facility (whether completed or otherwise) comprising a portion of the Work with the intent to retain possession thereof (as distinguished from temporary possession contemplating return to Design-Build Entity), then, while Owner is in possession of the same, Design-Build Entity shall be relieved of liability for loss or damage to such structure other than that resulting from the Design-Build Entity's fault or negligence. Such taking of possession by Owner shall not relieve the Design-Build Entity from any provisions of the Contract respecting such structure, other than to the extent specified in the preceding sentence, nor constitute a final acceptance of such structure or facility.

D. If, following installation of any equipment or facilities furnished by Design-Build Entity, defects requiring correction by Design-Build Entity are found, Owner shall have the right to operate such unsatisfactory equipment or facilities and make reasonable use thereof until the equipment or facilities can be shut down for correction of defects without injury to Owner.

ARTICLE 9 – WARRANTY, GUARANTY, AND INSPECTION OF WORK

9.01 Warranty And Guaranty

A. General Representations and Warranties. Design-Build Entity represents and warrants that it is and will be at all times fully qualified and capable of performing every Phase of the Work and to complete Work in accordance with Title 24, California Code of Regulations and the terms of Contract Documents. Design-Build Entity warrants that all design and construction services shall be performed in accordance with generally accepted professional standards of good and sound design and construction practices and all

requirements of Contract Documents, and that the design as developed will comply with the Bridging Documents and the intended use of the Project. Design-Build Entity warrants that Work, including but not limited to each item of materials and equipment incorporated therein, shall be new, of suitable grade of its respective kind for its intended use, and free from defects in design, architecture and/or engineering, materials, construction and workmanship. Design-Build Entity warrants that Work shall conform in all respects with all applicable requirements of federal, state and local laws, applicable construction codes and standards, licenses, and permits, Bridging Documents and all descriptions set forth therein, and all other requirements of Contract Documents. Design-Build Entity shall not be responsible, however, for the negligence of others in the specification of specific equipment, materials, design parameters and means or methods of construction where that is specifically shown and expressly required by Contract Documents.

B. Extended Guaranties. Any guaranty exceeding two years provided by the supplier or manufacturer of any equipment or materials used in the Project shall be extended for such term. Design-Build Entity shall supply Owner with all warranty and guaranty documents relative to equipment and materials incorporated in the Project and guaranteed by their suppliers or manufacturers.

C. Environmental and Toxics Warranty. The covenants, warranties and representations contained in this paragraph are effective continuously during Design-Build Entity's Work on the Project and following cessation of labor for any reason including, but not limited to, Project completion. Design-Build Entity covenants, warrants and represents to Owner that:

1. To Design-Build Entity's knowledge after due inquiry, no lead or asbestos-containing materials were installed or discovered in the Project at any time during Design-Build Entity's construction thereof. If any lead or asbestos-containing materials were discovered, Design-Build Entity made immediate written disclosure to Owner.
2. To Design-Build Entity's knowledge after due inquiry, no electrical transformers, light fixtures with ballasts or other equipment containing PCBs are or were located on the Project at any time during Design-Build Entity's construction thereof.
3. To Design-Build Entity's knowledge after due inquiry, no storage tanks for gasoline or any other toxic substance are or were located on the Project at any time during Design-Build Entity's construction thereof. If any such materials were discovered, Design-Build Entity made immediate written disclosure to Owner.
4. Design-Build Entity's operations concerning the Project are and were not in violation of any applicable environmental federal, state, or local statute, law or regulation dealing with hazardous materials substances or toxic substances and no notice from any governmental body has been served upon Design-Build Entity claiming any violation of any such law, ordinance, code or regulation, or requiring or calling attention to the need for any work, repairs, construction, alteration, or installation on or in connection with the Project in order to comply with any such laws, ordinances, codes, or regulations, with which Design-Build Entity has not complied. If there are any such notices with which Design-Build Entity has complied, Design-Build Entity shall provide Owner with copies thereof.

9.02 Inspection Of Work

A. All materials, equipment, and workmanship used in Work shall be subject to inspection and testing at all times during construction and/or manufacture in accordance with the terms of Contract Documents. Work and materials, and manufacture and preparation of materials, from beginning of construction until final completion and acceptance of Work, shall be subject to inspection and rejection by Owner, its agents, representatives or independent contractors retained by Owner to perform inspection services, or governmental agencies with jurisdictional interests. Design-Build Entity shall provide them proper and safe conditions for such access and advise them of Design-Build Entity's Site safety procedures and program so that they may comply therewith as applicable. Upon request or where specified, Owner shall be afforded access for inspection at the source of supply, manufacture or assembly of any item of material or equipment, with reasonable accommodations supplied for making such inspections.

B. Design-Build Entity shall give Owner a minimum of two business days' notice of readiness of Work for all required inspections, tests or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

C. Owner will hire through separate contract, a County-certified Inspector of Record for this Project, and a Special Inspection and Materials Testing Laboratory. Upon advance notice as set forth above, Owner will endeavor to schedule required inspections, but if resources are not available, Design-Build Entity may need to reschedule the Work at no additional cost to the Owner.

D. In the event that a scheduled inspection is canceled in less than 24 hours' notice by Design-Build Entity and the Owner incurs costs associated with the cancellation, Design-Build Entity will reimburse Owner for the actual costs of the canceled inspections. The amount will be deducted from payment owed Design-Build Entity.

E. If applicable laws or regulations of any public body (other than Kern County) having jurisdiction require any Work (or part thereof) specifically to be inspected, tested or approved by an employee or other representative of such public body, Design-Build Entity shall assume full responsibility for arranging and obtaining such inspections, tests or approvals, and furnish Owner with the required certificates of inspection, or approval. Owner will pay the cost of initial testing and Design-Build Entity shall pay all costs in connection with any follow-up or additional testing. Design-Build Entity shall also be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests or approvals required for the acceptance of materials or equipment to be incorporated in the Work, or of materials, mix designs, or equipment submitted for approval prior to Design-Build Entity's purchase thereof for incorporation in the Work.

F. If Design-Build Entity covers any Work, or the work of others, prior to any required inspection, test or approval without written approval of Owner, Design-Build Entity shall uncover the Work at Owner's request. Design-Build Entity shall bear the expense of uncovering Work and replacing Work.

G. In any case where Design-Build Entity covers Work contrary to Owner's request, Design-Build Entity shall uncover Work for Owner's observation or inspection at Owner's request. Design-Build Entity shall bear the cost of uncovering Work.

H. Whenever required by Owner, Design-Build Entity shall furnish tools, labor and materials necessary to make examination of Work that may be completed or in progress, even to extent of uncovering or taking down portions of finished Work. Should Work be found unsatisfactory, cost of making examination and of reconstruction shall be borne by Design-Build Entity. If Work is found to be satisfactory, Owner, in manner herein prescribed for paying for alterations, modifications, and extra Work, except as otherwise herein specified, will pay for examination.

I. Owner shall select testing agencies approved by Kern County to conduct required tests and inspections for the Project. A list of required structural tests and inspections prepared by Design-Build Entity and approved by Kern County shall be provided to the designated testing agency, Owner's representative and Inspector prior to the start of construction.

J. The testing agency shall forward the test results to Kern County, Design-Build Entity, Owner and the Project Inspector within 14 days of the date of the test. The testing agency shall forward to Kern County a verified report covering all the tests required to be made by that agency during the progress of the Project.

K. Inspection of the Work by or on behalf of Owner, or Owner's failure to do so, shall not under any circumstances be deemed a waiver or approval of any non-conforming aspect of the Work. Design-Build Entity shall have an absolute duty, in the absence of a written Change Order signed by Owner, to perform Work in conformance with the Contract Documents.

L. Any inspection, evaluation, or test performed by or on behalf of Owner relating to the Work is solely for the benefit of Owner, and shall not be relied upon by Design-Build Entity. Design-Build Entity shall not be relieved of the obligation to perform Work in accordance with the Contract Documents, nor relieved of any guaranty, warranty, or other obligation, as a result of any inspections, evaluations, or tests performed by Owner, whether or not such inspections, evaluations, or tests are permitted or required under the Contract Documents. Design-Build Entity shall be solely responsible for testing and inspecting Work already performed to determine whether such Work is in proper condition to receive later Work.

9.03 Correction Of Defective Work

A. Design-Build Entity shall correct Defective Work promptly upon knowledge of it. If Design-Build Entity fails to supply sufficient skilled workers, suitable materials or equipment, or to furnish or perform the Work in such a way that the completed Work will conform to Contract Documents, Owner may order Design-Build Entity to replace any Defective Work, or stop any portion of Work to permit Owner (at Design-Build Entity's expense) to replace such Defective Work. These Owner rights are entirely discretionary on the part of Owner, and shall not give rise to any duty on the part of Owner to exercise the rights for the benefit of Design-Build Entity or any other party.

B. Owner may direct Design-Build Entity to correct any Defective Work or remove it from the Site and replace it with Work that is not defective and satisfactorily correct or remove and replace any damage to other Work or the work of others resulting from the correction or removal. Design-Build Entity shall be responsible for any and all claims, costs, losses and damages caused by or resulting from such correction or removal. A Change Order will be

issued incorporating the necessary revisions in the Contract Documents with respect to the Work and the Contract Sum. If the parties are unable to agree to the amount of an appropriate decrease in the Contract Sum, Owner may decide the proper amount or, in its discretion may elect to leave the Contract Sum unchanged and deduct from moneys due Design-Build Entity, all such claims, costs, losses and damages caused by or resulting from the correction or removal. If Design-Build Entity disagrees with Owner's calculations, it may make a claim as provided in Article 12 of this Document 00 7253. Owner's rights under this paragraph shall be in addition to any other rights it may have under the Contract Documents or by law.

C. Correction period:

1. With respect to equipment and machinery supplied by Design-Build Entity and incorporated into the Work and placed into continuous service, if within one year after the date of Final Completion of the portion of the Work incorporating the equipment and/or machinery (or, to the extent expressed by Change Order or Certificate of Final Completion, one year after Owner's written acceptance of such equipment), or such longer period as may be prescribed by laws or regulations, or by the terms of the Contract Documents, any equipment or machinery is found to be defective, Design-Build Entity shall promptly, without cost to Owner and in accordance with Owner's written instructions, correct such Defective Work.
2. With respect to structures within the scope of Work, if within one year after the date of Final Completion, or such longer period of time as may be prescribed by laws or regulations, or by the terms of Contract Documents, any Work is found to be defective, Design-Build Entity shall promptly, without cost to Owner and in accordance with Owner's written instructions, correct such Defective Work.
3. Design-Build Entity shall remove any Defective Work rejected by Owner and replace it with Work that is not defective, and satisfactorily correct or remove and replace any damage to other Work or the work of others resulting therefrom. If Design-Build Entity fails to promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the Defective Work corrected or the rejected Work removed and replaced.
4. Design-Build Entity shall pay for all claims, costs, losses and damages caused by or resulting from such removal and replacement. Where Design-Build Entity fails to correct Defective Work, or defects are discovered outside the correction period, Owner shall have all rights and remedies granted by law.

D. Where Defective Work or rejected Work (and damage to other Work resulting therefrom) has been removed and replaced under this provision after the commencement of the correction period, the correction period hereunder with respect to such Work shall be extended for an additional period of one year after such removal and replacement has been satisfactorily completed.

E. If following installation of any equipment, machinery, or facilities furnished by Design-Build Entity, defects requiring correction by Design-Build Entity are found, Owner shall have the right to operate such defective equipment or facilities and make reasonable use thereof until the equipment, machinery, or facilities can be shut down for correction of defects without causing injury to Owner.

9.04 Acceptance And Correction Of Defective Work By Owner

A. Owner may accept Defective Work. Design-Build Entity shall pay all claims, costs, losses and damages attributable to Owner's evaluation of and determination to accept such Defective Work. If Owner accepts any Defective Work prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work and the Contract Sum. If the parties are unable to agree to the amount of an appropriate decrease in the Contract Sum, Owner may deduct from moneys due Design-Build Entity, all claims, costs, losses, damages, expenses and liabilities attributable to the Defective Work. If Design-Build Entity disagrees with Owner's calculations, Design-Build Entity may make a claim as provided in Article 12 of this Document 00 7253. If Owner accepts any Defective Work after final payment, Design-Build Entity shall pay to Owner, an appropriate amount as determined by Owner.

B. Owner may correct and remedy a deficiency if, after five Days' written notice to Design-Build Entity, Design-Build Entity fails to correct Defective Work or to remove and replace rejected Work as set forth in this Article; or provide a plan for correction of Defective Work acceptable to Owner; or perform Work in accordance with Contract Documents. In connection with such corrective and remedial action, Owner may exclude Design-Build Entity from all or part of the Site; take possession of all or part of Work and suspend Design-Build Entity's Work related thereto; take possession of all or part of Design-Build Entity's tools, appliances, construction equipment and machinery at the Site; and incorporate in Work any materials and equipment stored at the Site or for which Owner has paid Design-Build Entity but which are stored elsewhere. Design-Build Entity shall allow Owner, its representatives, agents, employees, and other contractors and Owner's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph. Design-Build Entity shall be responsible for all claims, costs, losses, damages, expenses and liabilities incurred or sustained by Owner in exercising such rights and remedies. A Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to Work and the Contract Sum. If the parties are unable to agree to the amount of an appropriate decrease in the Contract Sum, Owner may deduct from moneys due Design-Build Entity, all claims, costs, losses and damages caused by or resulting from the correction or removal. If Design-Build Entity disagrees with Owner's calculations, Design-Build Entity may make a claim as provided in Article 12 of this Document 00 7253.

C. Owner's decisions to accept Defective Work or correct Defective Work are subject to approval of Kern County, and any requirements of Title 24, California Code of Regulations.

9.05 Rights Upon Inspection Or Correction

A. Design-Build Entity shall not be allowed an extension of Contract Time because of any delay in the performance of Work attributable to the exercise by Owner of its rights and remedies under this Article 9. Where Owner exercises its rights under this Article 9, it retains all other rights it has by law or under the Contract Documents including, but not limited to, the right to terminate Design-Build Entity's right to proceed with the Work under the Contract Documents and/or make a claim or back charge where a Change Order cannot be agreed upon.

B. Inspection by Owner shall not relieve Design-Build Entity of its obligation to have furnished material and workmanship in accordance with Contract Documents. Payment for Work completed through periodic progress payments or otherwise shall not operate to waive Owner's right to require full compliance with Contract Documents and shall in no way be deemed as acceptance of the Work paid therefore. Design-Build Entity's obligation to complete the Work in accordance with Contract Documents shall be absolute, unless Owner agrees otherwise in writing.

9.06 Samples And Tests Of Materials And Work

A. Design-Build Entity shall furnish, in such quantities and sizes as may be required for proper examination and tests, samples or test specimens of all materials to be used or offered for use in connection with Work. Design-Build Entity shall prepare samples or test specimens at its expense and furnish them to Owner. Design-Build Entity shall submit all samples in ample time to enable Owner to make any necessary tests, examinations, or analyses before the time it is desired to incorporate the material into the Work.

B. Test samples or specimens of material for testing shall be taken by the Bridging Architect, his or her representative, Project Inspector or representative of the testing agency. In no case shall Design-Build Entity or vendor select the sample.

9.07 Proof Of Compliance Of Contract Provisions

A. In order that Owner may determine whether Design-Build Entity has complied or is complying with requirements of Contract Documents not readily enforceable through inspection and tests of Work and materials, Design-Build Entity shall at any time, when requested, submit to Owner properly authenticated documents or other satisfactory proofs of compliance with all applicable requirements.

9.08 Acceptance

A. Inspection by Owner or its authorized agents or representatives, any order or certificate for the payment of money, any payment, acceptance of the whole or any part of Work by Owner, any extension of time, any verbal statements on behalf of Owner or its authorized agents or representatives shall not operate as a waiver or modification of any provision of the Contract Documents, or of any power reserved to Owner herein or therein or any right to damages provided in the Contract Documents. Any waiver of any breach of the Contract Documents shall not be held to be a waiver of any other subsequent breach.

ARTICLE 10 – DESIGN-BUILD ENTITY'S ORGANIZATION AND EQUIPMENT

10.01 Design-Build Entity's Legal Address

A. Address and facsimile number given in Design-Build Entity's Proposal are hereby designated as Design-Build Entity's legal address and facsimile number. Design-Build Entity may change its legal address and facsimile number by notice in writing, delivered to Owner, which in conspicuous language advises Owner of a change in legal address or facsimile number, and which Owner accepts in writing. Delivery to Design-Build Entity's legal address or depositing in any post office or post office box regularly maintained by the United States Postal Service, in a wrapper with postage affixed, directed to Design-

Build Entity at legal address, or of any drawings, notice, letter or other communication, shall be deemed legal and sufficient service thereof upon Design-Build Entity. Facsimile to Design-Build Entity's designated facsimile number of any letter, memorandum, or other communication on standard or legal sized paper, with proof of facsimile transmission, shall be deemed legal and sufficient service thereof upon Design-Build Entity.

10.02 Design-Build Entity's Office At The Work Site

A. Design-Build Entity shall maintain an office at the Site, which office shall be headquarters of a Design-Build Entity representative authorized to transmit to and receive from Owner, communications, instructions or Drawings. Communications, instructions, or Drawings given to Design-Build Entity's representative or delivered at the Site office in representative's absence shall be deemed to have been given to Design-Build Entity.

10.03 Design-Build Entity's Superintendents Or Forepersons

A. Design-Build Entity shall at all times be represented on Site by one or more superintendents or forepersons authorized and competent to receive and carry out any instructions that Owner may give, and shall be liable for faithful observance of instructions delivered to Design-Build Entity or to authorized representative or representatives on Site.

10.04 Proficiency In English

A. Supervisors, security guards, safety personnel and employees who have unescorted access to the Site shall possess proficiency in the English language in order to understand, receive and carry out oral and written communications or instructions relating to their job functions, including safety and security requirements.

10.05 Design-Build Entity's And Subcontractors' Employees

A. Design-Build Entity shall employ, and shall permit its Subcontractors to employ, only competent and skillful personnel to do Work. If Owner notifies Design-Build Entity that any of its employees, or any of its Subcontractors' employees on Work is incompetent, unfaithful, disorderly or profane, or fails to observe customary standards of conduct or refuses to carry out any provision of the Contract Documents, or uses threatening or abusive language to any person on Work representing Owner, or violates sanitary rules, or is otherwise unsatisfactory, and if Owner requests that such person be discharged from Work, then Design-Build Entity or its Subcontractor shall immediately discharge such person from Work and the discharged person shall not be re-employed on the Work except with consent of Owner.

10.06 Design-Build Entity To List Trades Working

A. Design-Build Entity shall list the trades working on the Site and their scheduled activities on a daily basis, and provide a copy of that list to Owner.

10.07 Design-Build Entity's Use Of The Site

A. Design-Build Entity shall not make any arrangements with any person to permit occupancy or use of any land, structure or building within the limits of the Work, for any purpose

whatsoever, either with or without compensation, in conflict with any agreement between Owner and any owner, former owner or tenant of such land, structure or buildings. Design-Build Entity may not occupy Owner-owned property outside the limit of the Work as indicated on the Drawings unless it obtains prior written approval from Owner.

ARTICLE 11 – PROSECUTION AND PROGRESS OF THE WORK

11.01 Design-Build Entity To Submit Required Schedules

A. At the Preconstruction Conference, Design-Build Entity shall submit to Owner for review and discussion, and again in final form prior to the first payment application, the following documents:

1. Work Breakdown Schedule/Schedule of Values ("WBS/SOV") per Section 01 2000 (Measurement and Payment);
2. Progress schedules and reports as required in Section 01 3200 (Progress Schedules and Reports), as applicable;
3. Quality Control program and other submittals; and
4. Schedule of submittals per Section 01 3300 (Submittals).

B. No progress payment shall be due or owing to Design-Build Entity until such schedules are submitted to and acceptable to Owner as meeting the requirements of the Contract Documents. Owner's acceptance of Design-Build Entity's schedules will not create any duty of care or impose on Owner any responsibility for the sequencing, scheduling or progress of Work nor will it interfere with or relieve Design-Build Entity from Design-Build Entity's full responsibility therefore.

C. Before commencing any portion of Work, Design-Build Entity shall inform Owner in writing as to time and place at which Design-Build Entity wishes to commence Work, and nature of Work to be done, in order that proper provision for inspection of Work may occur, and to assure measurements necessary for record and payment. Information shall be given to Owner a reasonable time in advance of time at which Design-Build Entity proposes to begin Work, so that Owner may complete necessary preliminary work without inconvenience or delay to Design-Build Entity.

11.02 Design-Build Entity To Supply Sufficient Workers And Materials

A. Unless otherwise required by Owner under the terms of Contract Documents, Design-Build Entity shall at all times keep on the Site materials and employ qualified workers sufficient to prosecute Work at a rate and in a sequence and manner necessary to complete Work within the Contract Time. This obligation shall remain in full force and effect notwithstanding disputes or claims of any type.

B. At any time during progress of Work should Design-Build Entity directly or indirectly (through Subcontractors) refuse, neglect, or be unable to supply sufficient materials or employ qualified workers to prosecute the Work as required, then Owner may require Design-Build Entity to accelerate the Work and/or furnish additional qualified workers or materials as Owner may consider necessary, at no cost to Owner. If Design-Build Entity does not comply with the notice within three Business Days of date of service thereof, Owner shall have the right (but not a duty) to provide materials and qualified workers to

finish the Work or any affected portion of Work, as Owner may elect. Owner may, at its discretion, exclude Design-Build Entity from the Site, or portions of the Site or separate work elements during the time period that Owner exercises this right. Owner will deduct from moneys due or which may thereafter become due under the Contract Documents, the sums necessary to meet expenses thereby incurred and paid to persons supplying materials and doing Work. Owner will deduct from funds or appropriations set aside for purposes of Contract Documents the amount of such payments and charge them to Design-Build Entity as if paid to Design-Build Entity. Design-Build Entity shall remain liable for resulting delay, including liquidated damages (if any) and indemnification of Owner from claims of others.

C. Exercise by Owner of the rights conferred upon Owner in this subparagraph is entirely discretionary on the part of Owner. Owner shall have no duty or obligation to exercise the rights referred to in this subparagraph and its failure to exercise such rights shall not be deemed an approval of existing Work progress or a waiver or limitation of Owner's right to exercise such rights in other concurrent or future similar circumstances. (The rights conferred upon Owner under this subparagraph are, like all other such rights, cumulative to Owner's other rights under any provision of the Contract Documents.)

11.03 Design-Build Entity To Protect Underground Facilities

A. Drawings may indicate above and below grade structures and Underground Facilities such as: drainage lines, storm drains, sewers, water, gas, electrical, chemical, hot water, and other similar items and utilities. Design-Build Entity shall locate these known existing installations before proceeding with trenching or other operations that may cause damage. Design-Build Entity shall further locate, by carefully excavating with small equipment, potholing and principally by hand, all such utilities or installations that are to remain and that are subject to damage. If additional utilities whose locations are unknown are discovered, Design-Build Entity shall immediately report to Owner for disposition of the same.

B. Additional utilities whose locations are unknown to Owner are suspected to exist. Design-Build Entity shall be alert to their existence; if they are encountered, Design-Build Entity shall immediately report to Owner for disposition of the same. Design-Build Entity shall also investigate the existence of existing service laterals, appurtenances or other types of utilities, indicated by the presence of an underground transmission main or other visible facilities, such as buildings, new asphalt, meters and junction boxes, on or adjacent to the Site, even if not shown or indicated in information supplied by Owner or the regional notification center. Design-Build Entity shall immediately secure all such available information and notify Owner and the utility owner, in writing, of its discovery.

C. At all times during construction, all operating Underground Facilities shall remain in operation, unless the Contract Documents expressly indicate otherwise. Design-Build Entity shall maintain such Underground Facilities in service where appropriate; shall repair any damage to them caused by the Work; and shall incorporate them into the Work, including reasonable adjustments to the design location (including minor relocations) of the existing or new installations. Design-Build Entity shall take immediate action to restore any in service installations damaged by Design-Build Entity's operations.

11.04 Design-Build Entity To Locate Underground Utilities

A. Before commencing work of digging trenches or excavation, Design-Build Entity shall also review all information available regarding subsurface conditions, including but not limited to information supplied in Document 00 3132 (Geotechnical Data and Existing Conditions), and subject to the terms and conditions of these documents, Design-Build Entity shall also comply with Government Code Sections 4216 to 4216.9, and in particular Section 4216.2 which provides, in part:

> "Except in an emergency, every person planning to conduct any excavation shall contact the appropriate regional notification center at least two working days, but no more than 14 calendar days, prior to commencing that excavation, if the excavation will be conducted in an area which is known, or reasonably should be known, to contain subsurface installations other than the underground facilities owned or operated by the excavator, and, if practical, the excavator shall delineate with white paint or other suitable markings the area to be excavated. The regional notification center shall provide an inquiry identification number to the person who contacts the center and shall notify any member, if known, who has a subsurface installation in the area of the proposed excavation."

B. Design-Build Entity shall contact USA, and schedule the Work to allow ample time for the center to notify its members and, if necessary, for any member to field locate and mark its facilities. Design-Build Entity is charged with knowledge of all subsurface conditions reflected in USA records. Prior to commencing excavation or trenching work, Design-Build Entity shall provide Owner with copies of all USA records secured by Design-Build Entity. Design-Build Entity shall advise Owner of any conflict between information provided in Document 00 3132 (Geotechnical Data and Existing Conditions), the Drawings and that provided by USA records. Design-Build Entity's excavation shall be subject to and comply with the Contract Documents, including without limitation all applicable requirements set forth in this Document 00 7253 (General Conditions).

C. Additional compensation or extension of time on account of utilities not shown or otherwise brought to Design-Build Entity's attention, including reasonable action taken to protect or repair damage, shall be determined as provided in this Document 00 7253.

1. At no additional cost to Owner, Design-Build Entity shall incorporate into the Work main or trunk line utilities identified in the Contract Documents and other utilities or underground structures known or reasonably discernible and that will remain in service, including reasonable adjustments to the design location (including minor relocations) of the existing or new installations. Design-Build Entity shall take immediate action to restore any in service installations damaged by Design-Build Entity's operations. Should Owner determine that Design-Build Entity has not responded in a timely manner or not diligently pursued completion of the Work, Owner may restore service and deduct the costs of such action by Owner from the amounts due under the Contract.
2. Consistent with Government Code Section 4215, as between Owner and Design-Build Entity, Owner will be responsible for the timely removal, relocation, or

protection of existing main or trunk line utility facilities located on the Site only if such utilities are not identified in the Contract Documents or Document 00 3132 (Geotechnical Data and Existing Conditions). Owner will compensate for the cost of locating and repairing damage not due to Design-Build Entity's failure to exercise reasonable care, removing and relocating such main or trunk line utility facilities not indicated in the Contract Documents or Document 00 3132 (Geotechnical Data and Existing Conditions) with reasonable accuracy, and equipment on the Project necessarily idled during such work.

D. Design-Build Entity shall have full responsibility for: (i.) reviewing and checking all available information and data and information supplied from the regional notification center; (ii.) locating all Underground Facilities shown or indicated in the Contract Documents, available information, or indicated by visual observation including, but not limited to, and by way of example only, engaging qualified locating services and all necessary back hoeing and potholing; (iii.) coordination of the Work with the owners of such Underground Facilities during construction; and (iv.) the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

E. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated in the materials supplied by Owner or in information on file at USA or is otherwise reasonably available to Design-Build Entity, then Design-Build Entity shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby (and in no event later than seven Days), and prior to performing any Work in connection therewith (except in an emergency as required by this Document 00 7253), identify the owner of such Underground Facility and give written notice to that owner and to Owner. During such time, Design-Build Entity shall be responsible for the safety and protection of such Underground Facility.

F. Design-Build Entity shall be allowed an increase in the Contract Sum or an extension of the Contract Time, or both, to the extent that they are attributable to the existence of any Underground Facility that is owned and was built by Owner only where the Underground Facility:

1. Was not shown or indicated in the Contract Documents or in the information supplied pursuant to Document 00 3132 (Geotechnical Data and Existing Conditions) or in information on file at USA; and
2. Design-Build Entity did not know of it; and
3. Design-Build Entity could not reasonably have been expected to be aware of it or to have anticipated it from the information available. (For example, if surface conditions such as pavement repairs, valve covers, or other markings, indicate the presence of an Underground Facility, then an increase in the Contract Price or an extension of the Contract Time will not be due, even if the Underground Facility was not indicated in the Contract Documents, in the information supplied to Design-Build Entity pursuant to Document 00 3132 (Geotechnical Data and Existing Conditions), in information on file at USA, or otherwise reasonably available to Design-Build Entity.)

G. Design-Build Entity shall bear the risk that Underground Facilities not owned or built by Owner may differ in nature or locations shown in information made available by Owner pursuant to Document 00 3132 (Geotechnical Data and Existing Conditions), in information on file at USA, or otherwise reasonably available to Design-Build Entity. Underground Facilities are inherent in construction involving digging of trenches or other excavations and Design-Build Entity is to apply its skill and industry to verify the information available.

11.05 Connections To Or Alterations To Existing Conditions And Facilities

A. In planning and performing the Work, every effort shall be made to minimize the levels of noise, dirt, dust, molds, biological organisms (e.g., aspergillus), fumes, odors and similar items to the extent possible. Design-Build Entity shall remove, cut, alter, replace and repair existing building infrastructure, including without limitation plumbing, medical gas, fire and life safety equipment, utilities and casework, consistent with Design-Build Entity's coordination and planning responsibilities to not interfere with ongoing Owner operations, as necessary to install new Work. Except as otherwise shown or specified, Design-Build Entity shall not cut, alter or remove any structural Work, and shall not disturb any ducts, plumbing, steam, gas, or electrical Work without approval of Owner.

B. Unless otherwise specified or indicated, Design-Build Entity shall make all connections or alterations to existing facilities, including structures, drain lines, and utilities such as water, sewer, gas, telephone, and electric, necessary to complete the Work of the Contract Documents. In each case, Design-Build Entity shall provide advance notice to and receive permission from Owner or the owning utility prior to undertaking any connection or making any alterations.

C. Design-Build Entity shall restore existing conditions (walls, structures, partitions, floors, mechanical and electrical Work, etc.) disturbed or removed as a result of performing required new Work to the original conditions. Existing conditions or facilities to be altered or extended and found to be defective in any way, shall be reported to Owner before commencing Work. Materials and workmanship used in restoring conditions or facilities shall conform or exceed in type and quality that of original existing construction, except as otherwise shown or specified or required by codes or applicable standards.

11.06 Lines And Grades

A. All Work shall be done to the lines, grades, and elevations indicated on the Drawings.

B. Owner may such provide basic horizontal and vertical control points to be used as datums for the Work, as may be indicated on Drawings and Specifications; however, all further survey, layout, and measurement work shall be performed by Design-Build Entity as a part of the Work.

C. Design-Build Entity shall provide at its cost an experienced, appropriately licensed civil engineer or land surveyor, and all required instrument persons, competent assistants, and such instruments, tools, stakes and other materials required to complete the survey, layout, and measurement of work. In addition, Design-Build Entity shall furnish at its cost competent persons and such tools, stakes, and other materials as Owner may require in

establishing or designating control points, or in checking survey, layout, and measurement work performed by Design-Build Entity.

D. Design-Build Entity shall locate control points before commencing construction Work on any Site, preserve all reference points throughout construction, and promptly replace all points which become lost or destroyed.

E. Design-Build Entity shall keep Owner informed, a reasonable time in advance, of the times and places at which it wishes to do Work, so that any checking deemed necessary by Owner may be done with minimum inconvenience to Owner and minimum delay to Design-Build Entity.

F. Design-Build Entity shall remove and reconstruct Work which is improperly located.

11.07 Design-Build Entity To Not Disrupt Owner Operation

A. Design-Build Entity shall schedule and execute all Work in a manner that does not interfere with or disrupt Owner operations, including but not limited to, parking, utilities (electricity, gas, water), noise, vibration, odors/fumes, access by employees and administration, access by vendors, teachers, students, and any other person or entity using Owner facilities or doing business with Owner. Design-Build Entity shall produce and supply coordination plans and make timely requests to Owner, following Owner procedures, for any necessary interference of construction with Owner, with which Owner will reasonably cooperate. At a minimum, Design-Build Entity shall make every effort to minimize the levels of noise, vibration, dirt, dust, molds, biological organisms, fumes, odors and similar items to the extent possible and in accordance with local ordinances or other requirements.

B. Design-Build Entity's use of service areas and equipment and vehicle ingress and egress shall be kept to the minimum essential to its operations. Non-essential vehicles and equipment shall be kept out of such areas. In the event of unavoidable conflict with Owner's operations, and upon request of facility staff or vehicle attendants, Design-Build Entity shall eliminate such conflicting use immediately for emergency services.

C. Design-Build Entity shall produce and supply coordination plans and requests to Owner, following Owner procedures, for all necessary interface of construction with Owner, which Owner will reasonably cooperate with.

11.08 Maintenance, Product Handling, And Protection

A. Design-Build Entity shall transport, deliver, handle, and store materials and equipment at the Site in such a manner as to prevent the breakage, damage or intrusions of foreign matter or moisture, and otherwise to prevent damage. Design-Build Entity shall arrange for Owner right of inspection or observation of all materials and equipment in fabrication, assembly or transport, which right Owner may exercise in its sole unfettered discretion.

B. Design-Build Entity shall provide Owner with copies of the OSHA Material Safety Data Sheets (MSDS) for all products containing a hazardous substance, examples: Adhesives, paints, sealants, and the like.

C. Design-Build Entity shall provide packaged material in manufacturer's original containers with seals unbroken and labels intact until incorporated into the Work.

D. Design-Build Entity shall remove all damaged or otherwise unsuitable material and equipment promptly from the Site.

E. Design-Build Entity shall protect all work in place.

F. Cost of maintenance of systems and equipment prior to either Substantial Completion or Final Completion will be considered as included in Contract prices and no direct or additional payment will be made therefore.

G. Service and Maintenance Agreements. Design-Build Entity shall supply Owner with all service and maintenance agreements provided by the supplier or manufacturer of any equipment or materials used in the Project and provided by any subcontractors that performed any portion of the Project Work, including, but not limited to, Project landscaping, elevators, HVAC systems, and other large electrical and mechanical equipment. The duration of any service or maintenance agreements supplied to Owner shall be from the date of Final Completion of the Project Work.

11.09 Electronic Communications And Information Distribution

A. To maximize the efficiency of Project communication, Design-Build Entity agrees to work collaboratively with Owner to implement a common, accessible system for creating and maintaining Project reports, storing and retrieving Project minutes, logs, CAD files, and other critical Project documentation.

B. All communications recognized under the Contract Documents shall be in writing, in the form of a serialized document, by type of communication. For example, RFI's shall be serialized beginning with RFI No. 1; payment applications shall be serialized beginning with Payment Application No. 1, submittals shall be serialized per specification section and transmitted with transmittal sheets beginning with Transmittal No. 1; and correspondence shall be serialized beginning with letter No. 1. Design-Build Entity may propose other record management and identification systems or protocols, intended to facilitate orderly transmittal of project information, storage and retrieval of such information, which Owner will review consistent with these stated objectives, and accept or reject in its sole discretion.

C. All documents requiring signatures for approval prior to implementing action, as stipulated in other portions of these Contract Documents, shall require a manually signed, serialized letter delivered to the other party at its address for notice otherwise specified in the Contract Documents, either personally or by mail. Electronic data transfer of such correspondence will serve to expedite preliminary concurrence of information, only. Receipt of "hard copy" signature on forms is required prior to implementing action or work as the conditions may require. For example, change orders and authorizations for extra cost, require signatures. A party may acknowledge receipt of correspondence by e-mail, but in the absence of such acknowledgment, mail or personal delivery is required.

D. All emails shall be copied to Owner's and Design-Build Entity's Project Representative. Owner reserves the right to preclude e-mail communication, in whole or in part, as Project needs may require.

E. Communication between Owner and Design-Build Entity shall not be via Twitter, Facebook, or other types of instant text message systems. Any such communications shall be inadmissible for any purpose related to this Contract.

11.10 Design-Build Entity To Require, Review, Approve And Submit Submittals And Shop Drawings In Addition To Completed Design Drawings

A. Design-Build Entity's design team must obtain from Design-Build Entity's construction team, and then independently review and approve (and so indicate thereon), all technical submittals, to verify the quality of the Work and its conformance to design intent. Design-Build Entity's technical submittals consist of Shop Drawings, Manufacturer's Data, Samples and Miscellaneous Submittals.

1. Shop Drawings include, but are not limited to, custom prepared data such as fabrication, erection and installation drawings, schedule information, setting diagrams, actual shop work manufacturing instructions, custom templates, special wiring diagrams, coordination drawings, individual system or equipment inspection and test reports, concrete design mixes, Design-Build Entity engineering calculations and specially prepared operating and maintenance instructions, as applicable to the Work.
2. Manufacturer's Data includes, but is not limited to, standard prepared data for manufactured products such as a manufacturer's production specification and installation instructions, printed statements of compliance and applicability, catalogue cuts, product photographs, product operation and maintenance instruction and spare-parts listings, printed product warranties, as applicable to the Work.
3. Samples include, but are not limited to, physical samples of the Work such as sections of manufactured or fabricated Work, cuts or containers of materials, complete units for repetitively used products, paint samples, textile swatches, specimens for coordination of visual effect, graphic symbols and units of Work to be used for independent inspection and testing, as applicable to the Work.
4. Miscellaneous Submittals include, but are not limited to, job-prepared warranties and guaranties, maintenance agreements, project photographs, Design-Build Entity's survey data, excavating/foundation field reports, tradesmen testing/qualifying/certifying reports, list and delivery schedule for Owner-furnished and Design-Build Entity installed equipment, printed industry standards, record drawings, as-built records, collected and bound operating and maintenance manuals, keys and other security, protection and/or safety devices, maintenance tools and spare parts, as applicable to the Work.

B. Design-Build Entity shall coordinate all technical submittals from Subcontractors or otherwise, and review them for completeness and compliance with applicable Contract Documents. Design-Build Entity's design team must independently review and approve (and so indicate thereon), all technical submittals, prior to their coordination and review by Design-Build Entity.

C. Design-Build Entity shall submit submittals to Owner for review in strict accordance with Section 01 3300 (Submittals). Design-Build Entity's submittal of Shop Drawings shall be in addition to Design-Build Entity's Design Documents developed pursuant to the Contract Documents. Submission of a submittal shall constitute Design-Build Entity's representation that all requirements of Section 01 3300 (Submittals) have been complied with. All submittals will be identified as Owner may require and in the number of copies specified in Section 01 3300 (Submittals).

D. Design-Build Entity shall not perform Work that requires submission of a Shop Drawing or Sample or other submittal prior to submission and favorable review of the Shop Drawing or Sample or submittal. Where a Shop Drawing or Sample or other submittal is required by Contract Documents or the final Schedule of Shop Drawing and Sample Submittals accepted by Owner, any related Work performed prior to Owner's approval of the pertinent submittal shall be at the sole expense, responsibility and risk of Design-Build Entity.

11.11 Cost Data

A. Design-Build Entity shall maintain full and correct information as to the number of workers employed in connection with each subdivision of Work, the classification and rate of pay of each worker in form of certified payrolls, the cost to Design-Build Entity of each class of materials, tools and appliances used by Design-Build Entity in Work, and the amount of each class of materials used in each subdivision of Work. Design-Build Entity shall provide Owner with monthly summaries of this information. If Design-Build Entity maintains or is capable of generating summaries or reports comparing actual Project costs with Proposal estimates or budgets, Design-Build Entity shall provide Owner with a copy of such report upon Owner's request and whenever it is generated.

B. Design-Build Entity shall maintain daily job reports recording all significant activity on the job, including the number of workers on Site, Work activities, problems encountered and delays. Design-Build Entity shall provide Owner with copies for each Day Design-Build Entity works on the Project, to be delivered to Owner either the same Day or the following morning before starting work at the Site. Design-Build Entity shall take monthly progress photographs of all areas of the Work. Design-Build Entity shall maintain copies of all correspondence with Subcontractors and records of meetings with Subcontractors.

C. Owner shall have the right to audit and copy Design-Build Entity's books and records of any type, nature or description relating to the Project (including but not limited to financial records reflecting in any way costs claimed on the Project), and to inspect the Site, including Design-Build Entity's trailer, or other job Site office, and this requirement shall be contained in the subcontracts of Subcontractors working on Site. By way of example, Owner shall have the right to inspect and obtain copies of all Contract Documents, planning and design documents, Proposal and negotiation documents, cost records and job cost variance reports, design modification proposals, value engineering or other cost reduction proposals, revisions made to the original design, job progress reports, photographs, and as-built drawings maintained by Design-Build Entity. Owner and any other applicable governmental entity shall have the right to inspect all information and documents maintained under this paragraph 11.11. at any time during the Project and for a period of five years following Final Completion. This right of inspection shall not relieve Design-Build Entity of its duties and obligations under the Contract Documents. This right

of inspection shall be specifically enforceable in a court of law, either independently or in conjunction with enforcement of any other rights in the Contract Documents.

11.12 Record Documents

A. Design-Build Entity shall maintain in a safe place at the Site, construction records to include, but not limited to, the following documents to be maintained on a current basis:

1. One record copy of all Drawings, Specifications, Addenda, Contract Modifications, Change Orders, Work Directives, Force Account orders, and written interpretations and clarifications, organized and in good order and marked to show all as-built changes made during construction.
2. Shop drawings; product data/material data sheets; samples; submittal; purchases; materials; equipment; inspections; applicable handbooks; Title 15; Title 24; the California Uniform Building Code; maintenance and operating manuals and instructions; other related documents and revisions which arise out of the Construction Contracts. Design-Build Entity shall maintain records in duplicate, of principal building layout lines, elevations for the bottom of footings, floor levels, and key site elevations (certified by a qualified surveyor or professional engineer, if necessary).

B. Design-Build Entity shall make all such records available to Owner. At the completion of the Project, Design-Build Entity shall deliver all such records to the Owner to have a complete set of record as-built drawings.

C. Design-Build Entity's failure to comply with recordkeeping requirements under this subparagraph entitles Owner to withhold five percent of any Application for Payment until compliance.

ARTICLE 12 – CLAIMS BY DESIGN-BUILD ENTITY

12.01 General

A. The claim notice and documentation procedure described in this Article 12 applies to all claims and disputes arising under the Contract Documents, including without limitation any claim or dispute by any Subcontractor or material supplier. All Subcontractor and supplier claims of any type shall be brought only through Design-Build Entity as provided in this Article 12. Under no circumstances shall any Subcontractor or supplier make any direct claim against Owner.

B. “Claim” means a written demand or written assertion by Design-Build Entity seeking, as a matter of right, the payment of money, the adjustment or interpretation of Contract Documents terms, or other relief arising under or relating to Contract Documents. In order to qualify as a “claim,” the written demand must state that it is a claim submitted under this Article 12. A voucher, invoice, proposed change, Application for Payment, cost proposal, RFI, change order request, or other routine or authorized form of request for payment is not a claim under the Contract Documents. If such request is disputed as to liability or amount, then the disputed portion of the submission may be converted to a claim under the Contract Documents by submitting a separate claim in compliance with claim submission requirements.

C. The provisions of this Article 12 constitute a non-judicial claim settlement procedure, and also step one of a two-step claim presentment procedure by agreement under Section 930.2 of the California Government Code. Specifically, step one is compliance with this contract claims procedure and filing/administering timely contract claims in accordance with the Contract Documents first. Step two is filing a timely Government Code Section 910 claim in accordance with the California Government Code.

D. The provisions of this Article 12 shall survive termination, breach or completion of the Contract Documents. Design-Build Entity shall bear all costs incurred in the preparation and submission of a claim. Pursuant to Government Code Section 930.2, the one-year period in Government Code section 911.2 to file a Government Code Section 910 claim shall be reduced to 150 days. Any Government Code Section 910 claims shall be presented in accordance with the Government Code and shall affirmatively indicate Design-Build Entity's prior compliance with the claims procedure herein and previous dispositions of claims submitted hereunder.

12.02 Mandatory Procedures For Disputed Work

A. Disputed Work and Contract Procedures. Should it appear to Design-Build Entity that the Work to be performed or any of the matters relative to the Contract Documents are not satisfactorily detailed or explained therein, or should any questions arise as to the meaning or intent of the Contract Documents, or should any dispute arise regarding the true value of any work performed, work omitted, extra work that the Design-Build Entity may be required to perform, time extensions, payment to the Design-Build Entity during performance of this Contract, performance of the Contract, and/or compliance with Contract procedures, Owner decisions or directions, Owner actions or inactions, or should Design-Build Entity otherwise seek extra time or compensation FOR ANY REASON WHATSOEVER (hereafter, "Disputed Work"), then Design-Build Entity shall so advise Owner in writing and complete any applicable procedures set forth in the Contract for addressing and/or resolving such matters (including but not limited to other Articles of this Document 00 7253 and Section 01 2600 [Modification Procedures and Pricing of Changed Work]).

B. Timely Notice and Review of Disputed Work Required. Before commencing any Disputed Work (e.g., disputed RFI responses, Supplemental Instructions, Information Bulletins, decisions, etc.), or within ten (10) Days after Design-Build Entity's first knowledge of the Disputed Work, whichever is earlier, Design-Build Entity shall file a written notice and preliminary good faith cost proposal for the Disputed Work with Owner stating clearly and in detail its objection and reasons for contending the Disputed Work is outside or in breach of the requirements of Contract Documents. It is the responsibility of the Design-Build Entity to substantiate that the Disputed Work is in fact a change from the base scope of Work.

1. The written notice must identify the subcontractors, vendors, suppliers affected, if any, sufficient for Owner to visit the Site to inspect the work and/or conduct a telephonic interview of the persons involved, and/or to photograph the work in question; and Design-Build Entity shall supply digital photographs by email and provide Owner with contact information for all involved subcontractors, suppliers of any tier, to facilitate prompt "in person" review at the next job site meeting.

2. The preliminary cost proposal must provide a good faith preliminary estimate of the labor (workers, crews), equipment and/or materials involved, and a corresponding good faith preliminary estimate of cost.
3. The written notice and preliminary cost proposal for Disputed Work must be placed, by Design-Build Entity, as a specific discussion item on the Agenda for the next weekly meeting, where both Owner and Design-Build Entity shall then make a good-faith effort to review the Disputed Work, involving all Subcontractors, vendors, and other involved parties.
4. If discussions at the weekly meeting do not resolve the Disputed Work, then Design-Build Entity shall update its written notice and preliminary cost proposal based upon the discussions at the weekly meeting, and shall calendar the matter for discussion at the project executive level to occur within 10 days of the weekly meeting unless mutually agreed otherwise. The attendees at the project executive level meeting shall include all appropriate parties to the dispute and, in addition, senior level representatives of the Owner's and Design-Build Entity's Project team who have, or who have been designated with, primary responsibility for administration of the Contract.
5. If the initially required written notice and preliminary cost proposal for Disputed Work is not issued within the time period required herein, or if Design-Build Entity proceeds with the Disputed Work without first having given the notice of the Disputed Work, Design-Build Entity shall be deemed to have waived its rights to further claim on the specific issue.

C. Timely Notice of Potential Claims Required. Owner will review Design-Build Entity's timely notice and preliminary cost proposal for Disputed Work at the Project executive level, and provide a decision. If, after receiving the decision, Design-Build Entity disagrees with it or still considers the Work required of it to be outside of the requirements of Contract Documents, then Design-Build Entity shall so notify Owner, in writing, within ten (10) Days after receiving the decision, by submitting a notice of potential claim, stating that a formal claim will be issued. (If for any reason Owner should fail to act or provide a decision on a notice and preliminary cost proposal within thirty (30) days, then Design-Build Entity shall submit a notice of potential claim within ten days following the thirtieth (30th) day, i.e., or by the 40th day following the notice and preliminary cost proposal.) In all cases, Design-Build Entity shall continue to prosecute the Disputed Work to completion.

D. Claim Negotiations Required. Upon receipt of Design-Build Entity's notice of potential claim, Design-Build Entity and Owner shall negotiate the claim, again, once at the Project level, and a second time at the executive level, if necessary, to try and reach agreement. If Design-Build Entity and Owner fail or are unable to schedule or complete such negotiations, then the notice of potential claims shall be deemed denied.

E. Quarterly Claims Required. At the end of each calendar year quarter (March 31, June 30, September 30 and December 31) of each year, for each and every notice of potential claim that Design-Build Entity may have submitted in that quarter, Design-Build Entity shall submit a formal claim in the form specified herein. Design-Build Entity may file a single consolidated claim each quarter, or may file separate claims each quarter, as Design-Build Entity sees fit, provided Design-Build Entity complies with the requirements below. (Design-Build Entity may defer until the next reporting period the filing of a formal claim for any notices of potential claim timely issued within the last 21 days of the prior quarter.)

The formal claim(s) shall include all arguments, justification, cost or estimates, schedule analysis, and detailed documentation supporting Design-Build Entity's position, for each notice of potential claim that Design-Build Entity intends to pursue as a formal claim (further described below).

F. Claim Updates Required. If Disputed Work persists longer than a single calendar quarter, then Design-Build Entity shall, every quarter until the Disputed Work ceases, submit to Owner a document titled "Claim Update" that shall update and quantify all elements of the claim as completely as possible. Design-Build Entity's failure to submit a Claim Update or to quantify costs every quarter shall result in waiver of the claim for that period. Claims or Claim Updates stating that damages, total damages (direct and indirect), schedule impact and/or any time extension will be determined at a later date shall not comply with this subparagraph and shall result in Design-Build Entity waiving its claim(s). Design-Build Entity shall also maintain a continuing "claims log" that shall list all outstanding claims and their value, and provide such log to Owner quarterly.

12.03 Action On Claims

A. Final Decision. Upon receipt of Design-Build Entity's formal claim(s) including all arguments, justifications, cost or estimates, schedule analysis, and documentation supporting its position as required herein, and if the claims negotiations are unsuccessful, Owner or its designee will review the issue and render a final determination. If Owner should fail to provide a decision, then such claims shall be deemed denied after 45 days following their receipt.

B. Mediation. All Design-Build Entity formal claims shall, as a condition precedent to litigation thereon, first be mediated. Mediation shall be confidential, non-binding and utilize the services of a mediator mutually acceptable to the parties and, if the parties cannot agree, a mediator selected by the American Arbitration Association from its panel of approved mediators trained in construction industry mediation. All statutes of limitation shall be tolled from the date of the demand for mediation until a date two weeks following the mediation's conclusion. All unresolved Design-Build Entity claims shall be submitted to the same mediator. The cost of mediation shall be equally shared by all parties to the mediation.

12.04 Claim Format

A. Design-Build Entity shall submit the formal claim(s) with a cover letter and certification of the accuracy of the formal claim.

B. The formal claim(s) shall list separately each notice of potential claim that Design-Build Entity intends to pursue as a formal claim(s), and for each such item separately, Design-Build Entity shall provide the following:

1. Summary of the claim, including underlying facts, entitlement, schedule analysis, quantum calculations, contract provisions supporting relief;
2. List of documents relating to claim including Specifications, Drawings, clarifications/requests for information, schedules, notices of delay, and any others;
3. Chronology of events and correspondence;
4. Analysis of claim merit;

5. Analysis of claim cost; and
6. Attach supporting cost and schedule documents as required in this Article and elsewhere in the Contract Documents (e.g., Section 01 3230 [Progress Schedules and Reports]).

C. For each notice of potential claim that Design-Build Entity intends to pursue as a formal claim, Design-Build Entity shall establish in the formal claim a direct causal link between the separate item of cost/time requested, the separate notices of potential claim timely issued, and the specific changed Work asserted. Total cost claims shall not be allowed.

D. Claims shall be calculated in the same manner as Change Orders per Section 01 2600 (Modification Procedures and Pricing of Changed Work).

12.05 Subcontractor Claims

A. Design-Build Entity shall require each Subcontractor, sub-Subcontractor and supplier to comply with this claims procedure, to provide Design-Build Entity with timely notice and documentation of all claims; and Design-Build Entity shall present as its claims, all Subcontractor, sub-Subcontractor and supplier claims of any type, and prove them under the terms of the Contract Documents. Owner shall not be directly liable to any Subcontractor, any supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages or extra costs of any type arising out of or resulting from the Project.

12.06 Waiver and Substantial Compliance

A. If Design-Build Entity fails to comply with this Article 12 as to any claim or Disputed Work, then Design-Build Entity shall waive its rights to such claim. All claim(s), Disputed Work items or issue(s) not raised in a timely notice, timely notice of potential claim and then timely claim submitted under this Article 12, may not be asserted in any subsequent arbitration, litigation or legal action, and any award (or portion thereof) issued contrary to this preclusion shall be vacated to the extent contrary.

B. Design-Build Entity may request an extension of time to comply with the claims procedure herein, but must do so in advance of time periods expiring and Owner must give its approval in writing (which approval may be withheld in Owner discretion.) As to any other feature of the claim procedure herein (and its claims waiver feature), it may not be waived or altered absent a written Change Order signed by both parties and accepted as to form by their legal counsel.

C. Owner in its sole discretion, may consider Design-Build Entity's substantial compliance with the required initial notice and cost proposal, provided Design-Build Entity demonstrates good faith and a manifest lack of prejudice to Owner from late written notice, for example, contemporaneous Owner/Design-Build Entity discussions and review of Disputed Work with full opportunity to investigate and verify costs and work performed. Under no circumstances may substantial compliance by considered when the required written notice is more than 21 calendar days late.

D. Owner shall not be deemed to waive or alter any provision under this Article 12, if at Owner's sole discretion, a claim is administered in a manner not in accord with this Article 12.

12.07 Intent

A. The claim notice and documentation procedure described in this Article 12 is intended to require notice and sufficient documentation of claims, potential claims, disputes and disagreements, to permit discussions and negotiations of the matters in question, between and among all parties involved, prior to and contemporaneously with the matters in question, in sufficient time for the parties to make informed decisions, mitigate and document costs and potential costs.

B. Under no circumstances may this procedure be interpreted, modified or viewed to permit, claims, potential claims or change order requests for Disputed Work that has been performed, covered up or otherwise become unavailable for reasonable contemporaneous verification and negotiation with involved parties (e.g., Design-Build Entity, Subcontractor, suppliers, Owner, Bridging Architect, etc.).

ARTICLE 13 – LEGAL AND MISCELLANEOUS

13.01 Laws And Regulations

A. Design-Build Entity shall keep fully informed of and shall comply with all laws, ordinances, regulations and orders of any properly constituted authority affecting the Contract Documents, Work and persons connected with Work, and shall to the greatest extent permitted by law, protect and indemnify Owner and its officers, employees, consultants and agents against any claim or liability, including attorney's fees, arising from or based on violation of law, ordinance, regulation or order, whether by Design-Build Entity or by Subcontractors, employees or agents. Authorized persons may at any time enter upon any part of Work to ascertain compliance of all applicable laws, ordinances, regulations and orders.

B. Whenever Bridging Documents require larger sizes or higher standards than are required by any applicable law, ordinance, regulation or order, Bridging Documents shall govern. Whenever Bridging Documents require something that will violate such laws, ordinances, regulations or orders, then such laws, ordinances, regulations or orders shall govern.

C. Design-Build Entity shall comply with applicable portions of Title 15 and Title 24, California Code of Regulations (Uniform Building Code) (most recent edition), Public Contract Code. Whenever Contract Documents require larger sizes or higher standards than are required by any applicable law, ordinance, regulation or order, Contract Documents shall govern. Whenever Contract Documents require something that will violate such laws, ordinances, regulations or orders, then such laws, ordinances, regulations or orders shall govern.

D. Design-Build Entity shall maintain in the Project Office a current copy of Title 15 and 24 of the California Code of Regulations at all times during construction.

13.02 Permits And Taxes

A. Design-Build Entity shall procure all permits and licenses applicable to the Work (including environmental matters to the extent applicable), pay all charges and fees, including fees for street opening permits, comply with, implement and acknowledge effectiveness of all permits, initiate and cooperate in securing all required notifications or approvals therefore, and give all notices necessary and incident to due and lawful prosecution of Work, unless otherwise provided herein. Owner will pay applicable building permits, school, sanitation and water fees, except as otherwise provided in the Contract Documents. If, under federal excise tax law, any transaction hereunder constitutes a sale on which a federal excise tax is imposed, and the sale is exempt from such excise tax because it is a sale to a state or local government for its exclusive use, the Owner, upon request, will execute a certificate of exemption which will certify (1) that the Owner is a political subdivision of the state for the purpose of such exemption, and (2) that the sale is for the exclusive use of the Owner. No excise tax for such materials shall be included in any bid price. Design-Build Entity shall pay all sales and/or use taxes levied on materials, supplies, or equipment purchased and used on or incorporated into Work, and all other taxes properly assessed against equipment or other property used in connection with Work, without any increase in the Contract Sum. Design-Build Entity shall make necessary arrangements with proper authorities having jurisdiction over roads, streets, pipelines, navigable waterways, railroads, and other works in advance of operations, even where Owner may have already obtained permits for the Work.

13.03 Concealed Or Unknown Conditions

A. If either of the following conditions is encountered at Site when digging trenches or other excavations that extend deeper than four feet below the surface, Design-Build Entity shall give a written Notice of Differing Site Conditions to Owner promptly before conditions are disturbed, except in an emergency as required by this Document 00 7253, and in no event later than seven Days after first observance of:

1. Subsurface or Latent physical conditions which differ materially from those indicated in the Contract Documents; or
2. Unknown physical conditions of an unusual nature or which differ materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents.

B. In response to Design-Build Entity's Notice of Differing Site Conditions under this paragraph, Owner will investigate the identified conditions, and if they differ materially and cause increase or decrease in Design-Build Entity's cost of, or time required for, performance of any part of the Work, Owner will issue either a Proposal Form or a Construction Change Directive under the procedures described in the Contract Documents, including without limitation Section 01 2600 (Modification Procedures and Pricing of Changed Work). If Owner determines that physical conditions at the Site are not Latent or are not materially different from those indicated in Contract Documents or that no change in terms of the Contract Documents is justified, Owner will so notify Design-Build Entity in writing, stating reasons. Design-Build Entity shall in all cases continue to prosecute the Work.

C. Design-Build Entity shall not be entitled to any adjustment in the Contract Sum or Contract Time regarding claimed Latent or materially different Site conditions (whether above or below grade) if:

1. Design-Build Entity knew of the existence of such conditions at the time Design-Build Entity submitted its Proposal; or
2. Design-Build Entity should have known of the existence of such conditions as a result of having complied with the requirements of Contract Documents; or
3. The information or conditions claimed by Design-Build Entity to be Latent or materially different consist of information, conclusions, opinions or deductions of the kind that this Document 00 7253 precludes reliance upon; or
4. Design-Build Entity was required to give written Notice of Differing Site Conditions and failed to do so within the time required.

D. If Owner and Design-Build Entity are unable to agree on entitlement to or as to the amount or length of any adjustment in the Contract Sum or Contract Time required under this paragraph, Design-Build Entity may make a claim as provided in Article 12 of this Document 00 7253.

13.04 Notice Of Hazardous Waste Or Materials Conditions

A. Design-Build Entity shall give a written Notice of Hazardous Materials Condition to Owner promptly, before any of the following conditions are disturbed (except in an emergency as required by this Document 00 7253), and in no event later than 24 hours after first observance of any:

1. Material that Design-Build Entity believes may be hazardous waste or hazardous material, as defined in Section 25117 of the Health and Safety Code (including, without limitation, asbestos, lead, PCBs, petroleum and related hydrocarbons, and radioactive material) that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law (“hazardous material”); or
2. Other material that may present an imminent substantial danger to persons or property exposed thereto in connection with Work at the Site (“other materials”).

B. Except as otherwise provided in the Contract Documents or as provided by applicable law, Design-Build Entity shall not be required to give any notice for the disturbance or observation of any such hazardous materials or other materials where such matter is disturbed or observed as part of the scope of Work under the Contract Documents (such as hazardous waste or hazardous material investigation, remediation or disposal activities which are identified as the subject of Work under the Contract Documents), where Design-Build Entity complies with all requirements in the Contract Documents and applicable law respecting such materials.

C. Design-Build Entity’s Notice of Hazardous Materials Condition shall indicate whether the hazardous materials or other materials were shown or indicated in the Contract Documents to be within the scope of Work, and whether the hazardous materials or other materials were brought to the Site by Design-Build Entity, its Subcontractors, suppliers, or anyone else for whom Design-Build Entity is responsible.

D. Design-Build Entity shall not be entitled to any adjustment in the Contract Sum or Contract Time regarding claimed hazardous waste or materials if:

1. Design-Build Entity knew of the existence of such hazardous materials or other materials at the time Design-Build Entity submitted its Proposal; or
2. Design-Build Entity should have known of the existence of such hazardous material or other materials as a result of its having the responsibility to obtain additional or supplementary examinations, investigation, explorations, tests, studies, and data concerning the conditions at or contiguous to the Site prior to submitting its Proposal;
3. Design-Build Entity failed to give the written notice within the time required by this Document 00 7253; or
4. Design-Build Entity failed to give advance written notice, at least sixty (60) days prior to date when removal was required, of hazardous materials known to exist and required to be removed prior to execution of the Work.

E. If Owner determines that conditions involve hazardous materials or other materials and that a change in Contract Document terms is justified, Owner will issue either a Proposal Form or Construction Change Directive under the procedures described in the Contract Documents, including without limitation Section 01 2600 (Modification Procedures and Pricing of Changed Work). If Owner determines that conditions do not involve hazardous materials or other materials or that no change in Contract Document terms is justified, Owner will notify Design-Build Entity in writing, stating the reasons for its determination.

F. If Owner and Design-Build Entity are unable to agree on entitlement to or as to the amount or length of any adjustment in the Contract Sum or Contract Time required, Design-Build Entity may make a claim as provided in Article 12 of this Document 00 7253.

G. In addition to the parties' other rights under this Document 00 7253, if Design-Build Entity does not agree to resume Work based on a reasonable belief that it is unsafe, or does not agree to resume Work under special conditions, Owner may order the disputed portion of Work deleted from the Work, or performed by others, or Owner may invoke its right to terminate Design-Build Entity's right to proceed under the Contract Documents in whole or in part, for convenience or for cause as the facts may warrant. If Design-Build Entity does not agree with Owner's determination of any adjustment in the Contract Sum or Contract Time as a result, Design-Build Entity may make a claim as provided in Article 12 of this Document 00 7253.

13.05 Suspension Of Work

A. Owner may, without cause, order Design-Build Entity in writing to suspend, delay or interrupt Work in whole or in part for such period of time as Owner may determine. An adjustment shall be made for increases in cost of performance of Work of the Contract Documents caused by any such suspension, delay or interruption, calculated using the measures set forth in Section 01 2600 (Modification Procedures and Pricing of Changed Work). No adjustment shall be made to extent that:

1. Performance is, was or would have been so suspended, delayed or interrupted by another cause for which Design-Build Entity is responsible or otherwise not entitled to compensation under the Contract Documents; or

2. A change order is made or denied under any other provision of Contract Documents; or
3. The suspension of Work was the direct or indirect result of Design-Build Entity's failure to perform any of its obligations hereunder. Adjustments made in cost of performance may have a mutually agreed fixed or percentage fee; if the parties cannot agree, Design-Build Entity may file a claim under Article 12 of this Document 00 7253.

13.06 Termination Of Contract For Cause

A. Owner may declare Design-Build Entity in default of Contract Documents and Owner may terminate Design-Build Entity's right to proceed under the Contract Documents for cause:

1. Should Design-Build Entity make an assignment for the benefit of creditors; admit in writing its inability to pay its debts as they become due; file a voluntary petition in bankruptcy; be adjudged a bankrupt or insolvent; be the subject of an involuntary petition in bankruptcy which is not dismissed within 60 Days; file a petition or answer seeking for itself any reorganization, arrangement, composition, readjustment, liquidation, dissolution, or similar relief under any present or future statute, law, or regulation; file any answer admitting or not contesting the material allegations of a petition filed against Design-Build Entity in any such proceeding; or seek, consent to, or acquiesce in, the appointment of any trustee, receiver, custodian or liquidator of Design-Build Entity or of all or any substantial part of its properties or if Design-Build Entity, its directors or shareholders, take action to dissolve or liquidate Design-Build Entity; or
2. Should Design-Build Entity commit a material breach of the Contract Documents. If Owner declares Design-Build Entity in default due to material breach, however, Owner must allow Design-Build Entity an opportunity to cure such breach within ten Days of the date of notice from Owner to Design-Build Entity providing notice of the default; or, if such breach is curable but not curable within such ten-Day period, within such period of time as is reasonably necessary to accomplish such cure. (In order for Design-Build Entity to avail itself of a time period in excess of ten Days, Design-Build Entity must provide Owner within the ten-Day period with a written plan acceptable to Owner to cure said breach which includes, for example, evidence of necessary resources, Subcontractor commitments, schedules and recovery schedules meeting Contract Document requirements and showing a realistic and achievable plan to cure the breach. Design-Build Entity must then diligently commence and continue such cure according to the written plan); or
3. Should Design-Build Entity violate or allow (by a Subcontractor or other person or entity for which Design-Build Entity is responsible) a violation of any valid law, statute, regulation, rule, ordinance, permit, license or order of any governmental agency applicable to the Project or Work and does not cure (or cause to be cured) such violation within ten Days of the date of the notice from Owner to Design-Build Entity demanding such cure; or, if such violation is curable but not curable within such ten-Day period, within such period of time as is reasonably necessary to accomplish such cure. (In order for Design-Build Entity to avail itself of a time period in excess of ten Days, Design-Build Entity shall provide Owner within the ten-Day period with a written plan to cure said violation acceptable to Owner, and then

diligently commence and continue performance of such cure according to the written plan.)

B. If Owner at any time reasonably believes that Design-Build Entity is or may be in default under the Contract Documents as provided above, Owner may in its sole discretion notify Design-Build Entity of this fact and request written assurances from Design-Build Entity of performance of Contract Documents and a written plan from Design-Build Entity to remedy any potential default under the terms of Contract Documents which Owner may advise Design-Build Entity of in writing. Design-Build Entity shall, within 10 Days of Owner's request, deliver a written cure plan which meets the requirements of the written plan deliverable under this subparagraph above. Failure of Design-Build Entity to provide such written assurances of performance and the required written plan, within ten Days of request, will constitute a material breach of Contract Documents sufficient to justify termination for cause.

C. In event of termination for cause, Owner will immediately serve written notice thereof upon Surety and Design-Build Entity. Surety shall have the rights and obligations set forth in Document 00 6113.13 (Construction Performance Bond). Subject to the Surety's rights under the Performance Bond (which rights are waived upon a default thereunder), Owner may take over the Work and prosecute it to completion by contract or by any other methods it may deem advisable.

D. In the event of termination by Owner:

1. Owner will compensate Design-Build Entity for the value of the Work delivered to Owner upon termination as determined in accordance with the Contract Documents, subject to all rights of offset and back charges, and provided that Design-Build Entity provides Owner with updated as-builts and Project Record Documents showing the Work performed up to the date of termination. However, Owner will not compensate Design-Build Entity for its costs in terminating the Work or any cancellation charges owed to third parties.
2. Design-Build Entity shall deliver to Owner possession of the Work in its then condition including, but not limited to, all designs, architectural and engineering, Project records, Project Record Documents, cost data of all types, Bridging Documents and contracts with vendors and Subcontractors, all other documentation associated with the Project, and all construction supplies and aids dedicated solely to performing the Work which, in the normal course of construction, would be consumed or only have salvage value at the end of the construction period. Design-Build Entity shall remain fully liable for the failure of any Work completed and materials and equipment provided through the date of such termination to comply with the provisions of the Contract Documents. The provisions of this subparagraph shall not be interpreted to diminish any right which Owner may have to claim and recover damages for any breach of Contract Documents or otherwise, but rather, Design-Build Entity shall compensate Owner for all loss, cost, damage, expense, and/or liability suffered by Owner as a result of such termination and failure to comply with Contract Documents.
3. Owner's rights under this paragraph shall be specifically enforceable to the greatest extent permitted by law. Owner shall, to the extent applicable, have all other rights and remedies set forth in the Contract Documents.

E. Owner may terminate portions or parts of the Work for cause, provided these portions or parts (1) have separate geographic areas from parts or portions of the Work not terminated or (2) are limited to the work of one or more specific trades or Subcontractors. In such case, Design-Build Entity shall cooperate with a completing Design-Build Entity as required under Article 6 of this Document 00 7253.

F. In the event a termination for cause is later determined to have been made wrongfully or without cause, then the termination shall be treated as a termination for convenience, and Design-Build Entity shall have the recovery rights as specified below. Any Design-Build Entity claim arising out of a termination for cause, however, shall be made in accordance with Article 12 of this Document 00 7253. No other loss cost, damage, expense or liability may be claimed, requested or recovered by Design-Build Entity.

13.07 Termination Of Contract For Convenience

A. Owner may terminate performance of the Work under the Contract Documents for convenience in accordance with this clause in whole, or from time to time in part, whenever Owner shall determine that termination is in Owner's best interest. Termination shall be effected by Owner delivering to Design-Build Entity notice of termination specifying the extent to which performance of the Work under the Contract Documents is terminated and the effective date of the termination.

B. After receiving a notice of termination for convenience, and except as otherwise directed by Owner, Design-Build Entity shall:

1. Stop Work under the Contract Documents on date and to extent specified in notice of termination;
2. Place no further orders or subcontracts for materials, services, or facilities except as necessary to complete portion of Work under the Contract Documents which is not terminated;
3. Terminate all orders and subcontracts to extent that they relate to performance of Work terminated by the notice of termination;
4. Assign to Owner in manner, at times, and to extent directed by Owner, all right, title, and interest of Design-Build Entity under orders and subcontracts so terminated. Owner shall have the right, in its sole discretion, to settle or pay any or all claims arising out of termination of orders and subcontracts;
5. Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with approval or ratification of Owner to extent Owner may require. Owner's approval or ratification shall be final for purposes of this paragraph;
6. Transfer title to Owner, and deliver in the manner, at the times, and to the extent, if any, directed by Owner, all fabricated or unfabricated parts, Work in process, completed Work, supplies, and all other material produced as part of, or acquired in connection with performance of, Work terminated by the notice of termination, and completed or partially completed drawings, drawings, specifications, information, and other property which, if the Project had been completed, would have been required to be furnished to Owner;
7. Use its best efforts to sell, in manner, at times, to extent, and at price or prices that Owner directs or authorizes, any property of types referred to in this subparagraph, but Design-Build Entity shall not be required to extend credit to any purchaser, and

may acquire any such property under conditions prescribed and at price or prices approved by Owner. Proceeds of transfer or disposition shall be applied to reduce payments to be made by Owner to Design-Build Entity under the Contract Documents or shall otherwise be credited to the price or cost of Work covered by Contract Documents or paid in such other manner as Owner may direct;

8. Complete performance of the part of the Work which was not terminated by the notice of termination; and
9. Take such action as may be necessary, or as Owner may direct, to protect and preserve all property related to Contract Documents which is in Design-Build Entity's possession and in which Owner has or may acquire interest.

C. After receipt of a notice of termination for convenience under this subparagraph, Design-Build Entity shall submit to Owner its termination claim, in form and with all certifications required by Article 12 of this Document 00 7253. Design-Build Entity's termination claim shall be submitted promptly, but in no event later than 6 months from effective date of the termination. Design-Build Entity and Owner may agree upon the whole or part of the amount or amounts to be paid to Design-Build Entity because of a total or partial termination of Work. If Design-Build Entity and Owner fail to agree on the whole amount to be paid to Design-Build Entity because of the termination for convenience of the Work under this subparagraph, Owner's total liability to Design-Build Entity by reason of the termination shall not exceed the total (without duplication of any items) of:

1. The reasonable cost to Design-Build Entity, without profit, for all Work performed prior to the effective date of the termination, including Work done to secure the Project for termination. Reasonable cost may not exceed the applicable percentage completion values derived from the progress schedule and the schedule of values. Deductions shall be made for cost of materials to be retained by Design-Build Entity, cost of Work defectively performed, amounts realized by sale of materials, and for other appropriate credits against cost of Work. Reasonable cost will include reasonable allowance for Project overhead and general administrative overhead not to exceed a total of ten percent of direct costs of such Work. When, in Owner's opinion, the cost of any item of Work is excessively high due to costs incurred to remedy or replace defective or rejected Work, reasonable cost to be allowed will be the estimated reasonable cost of performing the Work in compliance with requirements of Contract Documents and excessive actual cost shall be disallowed.
2. A reasonable allowance for profit on cost of Work performed as determined under this subparagraph, provided that Design-Build Entity establishes to Owner's satisfaction that Design-Build Entity would have made a profit had the Project been completed, and provided further that the profit allowed shall not exceed 5 percent of cost.
3. Reasonable costs to Design-Build Entity of handling material returned to vendors, delivered to Owner or otherwise disposed of as directed by Owner.
4. A reasonable allowance for Design-Build Entity's internal administrative costs in preparing termination claim.
5. Except as provided in this subparagraph, Owner shall not be liable for costs incurred by Design-Build Entity or Subcontractors after receipt of a notice of termination. Such non-recoverable costs include, but are not limited to, anticipated profits on Work not performed as of the date of termination, post-termination employee salaries, post-termination general administrative expenses, post-termination

overhead or unabsorbed overhead, costs of preparing and submitting Design-Build Entity's Proposal, attorney's fees of any type, and all costs relating to prosecution of claim or lawsuit.

6. Owner shall have no obligation to pay Design-Build Entity under this subparagraph unless and until Design-Build Entity provides Owner with updated and acceptable as-builts and Project Record Documents for Work completed prior to termination.

D. In arriving at the amount due Design-Build Entity under this clause, there shall be deducted in whole (or in the appropriate part[s] if the termination is partial):

1. All unliquidated advances or other payments on account previously made to Design-Build Entity, including without limitation all payments applicable to the terminated portion of Contract Documents;
2. Any claim which Owner may have against Design-Build Entity in connection with Contract Documents; and
3. The agreed price for, or proceeds of sale of, any materials, supplies, or other things kept by Design-Build Entity or sold under provisions of this Document 00 7253, and not otherwise recovered by or credited to Owner.

13.08 Contingent Assignment of Subcontracts and Design Agreements

A. Design-Build Entity hereby assigns to Owner each Subcontract for a portion of the Work and each Design agreement, provided that:

1. The assignment is effective only after Owner's termination of Design-Build Entity's right to proceed under the Contract Documents (or portion thereof relating to that Subcontract or Designer) for cause or for convenience, under Document 00 7253.
2. The Assignment is effective only for the Subcontracts and Design agreements which Owner expressly accepts by notifying the Subcontractor or Designer in writing;
3. The assignment is subject to the prior rights, if any, of the Surety, obligated by Document 00 6113.13 (Construction Performance Bond) provided under the Contract Documents, where the Surety exercises its rights to complete the Contract;
4. After the effectiveness of an assignment, Design-Build Entity shall, at its sole cost and expense, sign all instruments and take all actions reasonably requested by Owner to evidence and confirm the effectiveness of the assignment in Owner; and
5. Nothing in this paragraph shall modify or limit any of Design-Build Entity's obligations to Owner arising from acts or omissions occurring before the effectiveness of any Subcontract or Design agreement assignment, including but not limited to all defense, indemnity and hold-harmless obligations arising from or related to the assigned Subcontract or Design agreement.

13.09 Remedies and Contract Integration

A. Subject to Contract Documents provisions regarding Design-Build Entity claims, claim review, and claim resolution, and subject to the limitations therein, the exclusive jurisdiction and venue for resolving all claims, counter-claims, disputes and other matters in question between Owner and Design-Build Entity arising out of or relating to Contract Documents, any breach thereof or the Project, shall be the applicable court of competent jurisdiction identified in Document 00 5200 (Agreement). All Owner remedies provided in the Contract Documents shall be taken and construed as cumulative and not exclusive;

that is, in addition to each and every other remedy herein provided; and in all instances Owner shall have any and all other equitable and legal rights and remedies which it would have according to law.

B. The Contract Documents, any Contract Modifications and Change Orders shall represent the entire and integrated agreement between Owner and Design-Build Entity regarding the subject matters hereof and thereof and shall constitute the exclusive statement of the terms of the parties' agreement. The Contract Documents, and any Contract Modifications and Change Orders, shall supersede any and all prior negotiations, representations or agreements, written or oral, express or implied, that relate in any way to the subject matter of the Contract Documents or written modifications. Owner and Design-Build Entity represent and agree that, except as otherwise expressly provided in the Contract Documents, they are entering into the Contract Documents and any subsequent written modification in sole reliance upon the information set forth or referenced in the Contract Documents or Contract Modifications and the parties are not and will not rely on any other information.

C. In any proceeding to enforce the Contract Documents, Design-Build Entity and Owner agree that the finder of fact shall receive detailed instructions on the meaning and operation of the Contract Documents, including their conditions, limitations of liability and remedies clauses, claims procedures and any other provisions impacting major defenses and theories of liability of the parties. Detailed findings of fact shall be requested, to verify Contract enforcement.

D. Either party's waiver of any breach or failure to enforce any of the terms, covenants, conditions or other provisions of the Contract Documents at any time shall not in any way affect, limit, modify or waive that party's right thereafter to enforce or compel strict compliance with every term, covenant, condition or other provision hereof, any course of dealing or custom of the trade or oral representations notwithstanding.

13.10 Patents

A. Fees or claims for any patented invention, article or arrangement that may be used upon or in any manner connected with performance of the Work or any part thereof shall be included in the Proposal price for doing the Work. To the greatest extent permitted by law, Design-Build Entity shall defend, indemnify and hold harmless Owner and each of its officers, employees, consultants and agents, including, but not limited to, the Board, Bridging Architect and each Owner representative, from all damages, claims for damages, costs or expenses in law or equity, including attorney's fees, arising from or relating to any claim that any article supplied or to be supplied under the Contract Documents infringes on the patent rights, copyright, royalties, trade name, trademark, service mark, trade secret or other intellectual property right of any person or persons or that the person or entity supplying the article does not have a lawful right to sell the same. Such costs or expenses for which Design-Build Entity agrees to indemnify and hold harmless the above indemnities include but are not limited to any and all license fees, whether such fees are agreed by any indemnitee or ordered by a court or administrative body of any competent jurisdiction.

13.11 Substitution For Patented And Specified Articles

A. Except as noted specifically in Bridging Documents, whenever in Bridging Documents, material or process is designated by patent or proprietary name or by name of manufacturer, such designation shall be deemed to be used for purpose of facilitating description of material and process desired, and shall be deemed to be followed by the words “or equal.” Design-Build Entity may offer any substitute material or process that Design-Build Entity considers equal in every respect to that so designated and if material or process offered by Design-Build Entity is, in opinion of Owner, equal in every respect to that so designated, its use will be approved. However, Design-Build Entity may utilize this right only by timely submitting Document 00 6325 (Substitution Request Form) as provided in Document 00 0119 (Instructions to Proposers), or as otherwise provided in Contract Documents. A substitution will be approved only if it is a true “equal” item in every aspect of its design and quality, including but not limited to its dimensions, weights, service requirements, durability, functioning, impact on contiguous construction elements, overall schedule and design.

13.12 Interest Of Public Officers

A. No representative, officer, or employee of Owner, no member of the governing body of the locality in which the Project is situated, no member of the locality in which Owner was activated, and no other public official of such locality or localities who exercises any functions or responsibilities with respect to the Project, during the tenure of the official or for one year thereafter, shall, as principal, agent, attorney or otherwise, be directly or indirectly interested, in the Contract Documents or the proceeds thereof.

13.13 Limit Of Liability

A. OWNER, AND EACH OF ITS OFFICERS, BOARD MEMBERS, EMPLOYEES, CONSULTANTS AND AGENTS INCLUDING, BUT NOT LIMITED TO, BRIDGING ARCHITECT AND EACH OTHER COUNTY REPRESENTATIVE, SHALL HAVE NO LIABILITY TO DESIGN-BUILD ENTITY FOR SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, EXCEPT TO THE LIMITED EXTENT THAT THESE CONTRACT DOCUMENTS OR APPLICABLE PUBLIC CONTRACTING STATUTES MAY SPECIFY THEIR RECOVERY.

13.14 Severability

A. Any provisions or portions thereof of Contract Documents that are prohibited by, unlawful, or unenforceable under any applicable law of any jurisdiction shall as to such jurisdiction be ineffective without affecting other provisions or portions thereof in the Contract Documents.

13.15 Ownership Of Results/Works For Hire

A. The architectural and/or engineering analysis, Design Development Documents and Construction Documents, that are prepared pursuant to the Contract Documents are and shall remain the property of Owner. Design-Build Entity hereby does and shall cause all Subcontractors and others who prepared such design documents for the Project to transfer, convey, and assign to Owner all rights throughout the world in the nature of

copyright and trademark in and to all versions of such design documents, including but not limited to the Contract Documents, but only to the extent such materials apply to Owner and/or to the Project. (Owner shall not have the copyright in an architect's or engineer's standard details, however, other than a license as necessary for this Project). Owner shall have the right to distribute, copy or to cause the distribution and copying of such Construction Documents to third parties as may reasonably be necessary in connection with the Project.

B. Any and all artwork, copy, posters, billboards, photographs, videotapes, audiotapes, systems designs, software, reports, diagrams, surveys, source codes or any original works of authorship created by Design-Build Entity or its Subcontractors or designers in connection with services performed under the Contract Documents shall be works for hire as defined under Title 17 of the United States Code, and all copyrights in such works are the property of Owner. In the event that it is ever determined that any works created by Design-Build Entity or its Subcontractors or designers under this Contract are not works for hire under U.S. law, Contractor hereby assigns all copyrights to such works to Owner. With the prior written approval of Owner, Design-Build Entity may retain and use copies of such works for reference and as documentation of its experience and capabilities.

13.16 Free Of Liens

A. Design-Build Entity shall at all times keep the Site and all areas where Work is to be performed free and clear of all liens, claims and encumbrances arising by or through Design-Build Entity, including without limitation any lien arising by virtue of any labor or materials provided by any laborer, materialman, mechanic, employee, supplier or other ("Lien"). Should Design-Build Entity not either pay or cause to be released (pursuant to a mechanics lien release bond or otherwise) any Lien by any date within five business days after notice from Owner, Owner may, at its sole election, either pay the Lien in an amount determined by Owner in its sole discretion, or (ii) purchase a release bond for the Lien in the required statutory amount, in either case with funds obtained by setting off any amounts otherwise due or to become due Design-Build Entity, and reduce the Contract Sum by such amount. If funds are insufficient, Design-Build Entity shall promptly pay the deficiency to Owner.

ARTICLE 14 – MODIFICATIONS OF CONTRACT DOCUMENTS

14.01 Alterations, Modifications and Force Account Work

A. As provided in the latest edition of Title 24, California Code of Regulations, no modification or deviation from the Kern County approved Drawings and Specifications will be permitted except by written addenda, written Change Order or written Supplemental Instruction. As appropriate, Change Orders are subject to approval by Kern County.

B. Owner may, without notice to the sureties, make alterations, deviations, additions to, or deletions from Contract Documents; increase or decrease the quantity of any item or portion of the Work; expand, contract or otherwise change the Contract Time; delete any item or portion of the Work; and require extra Work. Design-Build Entity shall perform such Work under applicable provisions of the Contract Documents, unless specifically provided otherwise at the time the change is ordered. As appropriate, such Change Orders are subject to approval by Kern County. Refer to Title 24, California Code of

Regulations. In the case of any ordered extra Work, Owner reserves the right to furnish all or portions of associated labor, material, and equipment, which Design-Build Entity shall accept and use without payment for costs, markup, profit, or otherwise for such Owner-furnished labor, materials, and equipment.

C. Owner may make changes to the Work during the course of construction to bring the Work into compliance with environmental requirements or standards established by state and federal statutes and regulations enacted after the Contract has been awarded. Design-Build Entity shall be compensated for changes affecting the Contract Time or Contract Sum of the Work as set forth in this Article 14 and in Section 01 2600 (Modification Procedures and Pricing of Changed Work).

D. Changes affecting the Contract Time or Contract Sum of the Work shall be set forth in a written Change Order that shall specify:

1. The Work performed in connection with the change to be made;
2. The amount of the adjustment of the Contract Sum, if any, and the basis for compensation for the Work ordered; and
3. The extent of the adjustment in the Contract Time, if any.

E. A Change Order will become effective when signed by Owner and Design-Build Entity. If Owner exercises its right to decide disputed issues pertaining to changed Work as set forth in Articles 12 and 14 of this Document 00 7253, then the resulting Change Order shall be effective when signed by Owner, notwithstanding that Design-Build Entity has not signed it.

F. Changes not affecting the Contract Time or Contract Sum of the Work, in Owner's discretion, may be set forth in a written RFI-Reply executed by Owner. Execution of such an RFI-Reply constitutes Design-Build Entity's agreement to make the specified change without change to the Contract Sum or the Contract Time.

G. Changes or deviations from Contract Documents affecting the Contract Time or Contract Sum of the Work shall not be made without the authority of an effective Change Order or Construction Change Directive as provided in Section 01 2600 (Modification Procedures and Pricing of Changed Work), except in cases of emergency discussed in Article 16 of this Document 00 7253.

H. If changes ordered in design, workmanship or materials are of such a nature as to increase or decrease the cost of any part of the Work, the price fixed in the Contract Documents shall be increased or decreased by the amount that Design-Build Entity and Owner may agree upon as a reasonable and proper allowance for the cost increase or decrease. If an agreement cannot be reached, then Owner will reach a determination, which shall be final, subject to Design-Build Entity's rights under Article 12 of this Document 00 7253. In all cases Design-Build Entity shall perform the changed Work as directed by Owner subject to Design-Build Entity's rights under Article 12 of this Document 00 7253.

I. Design-Build Entity shall, upon Owner's request, permit inspection of the original unaltered Proposal estimate, subcontract agreements, purchase orders relating to the change, and documents substantiating all costs associated with its cost proposal or claims arising from changes in the Work.

J. Changes in the Work made pursuant to this Article 14 and extensions of Contract Time necessary by reason thereof shall not in any way release the guaranties and warranties given by Design-Build Entity pursuant to provisions of the Contract Documents, nor shall such changes in the Work relieve or release the Sureties of bonds executed pursuant to said provisions. The Sureties, in executing such bonds, shall be deemed to have expressly agreed to any such change in the Work and to any extension of time made by reason thereof.

K. Procedures for Modifications of Contract Documents and for calculating the cost of extra Work are given in Section 01 2600 (Modification Procedures and Pricing of Changed Work). Regarding delay and impact costs of any nature, Design-Build Entity may not seek delay compensation for on-Site or off-Site costs based on formulas, e.g., "Eichlay" or other formula. Rather, Design-Build Entity shall prove actual costs resulting from such delays. If Design-Build Entity requests compensation for delay to the construction, then Design-Build Entity shall prove and document actual costs plus markup per the cost categories and procedures in Section 01 2600 (Modification Procedures and Pricing of Changed Work) in order to request, claim or prove compensation for delay.

L. Change Orders in excess of Owner's approved limit must be approved by Owner's Board and a performance bond rider covering the changed Work executed before proceeding with the changed Work. Design-Build Entity is charged with knowledge of Owner's approved Change Order limits and procedures in effect at the applicable time.

ARTICLE 15 – TIME ALLOWANCES

15.01 Entitlement To Change Of Contract Time

A. The Contract Time may only be changed by Change Order or by Contract Modification, and all time limits stated in the Contract Documents are of the essence of Contract Documents.

B. The Contract Time will be adjusted in an amount equal to the time lost due to:

1. Changes in the Work ordered by Owner;
2. Acts or neglect by Owner, Architect/Engineer, any Owner representative, utility owners or other contractors performing other work, in breach of their responsibilities established in the Contract Documents, provided that Design-Build Entity has fully and completely performed its responsibilities under the Contract Documents; or
3. Fires, floods, epidemics, abnormal weather conditions beyond the parameters otherwise set forth in this subparagraph, earthquakes, civil or labor disturbances, strikes or acts of God, provided damages resulting therefrom are not the result of Design-Build Entity's failure to protect the Work as required by Contract Documents.

C. The Contract Time shall not be extended for any cause identified above, however, unless:

1. Design-Build Entity actually has been prevented from completing any part of the Work within the Contract Time due to delay that is beyond Design-Build Entity's control and due to reasons for which Design-Build Entity is not responsible (delays attributable to and within the control of a Subcontractor, or its subcontractors, or supplier shall be deemed to be delays within the control of Design-Build Entity);

2. A claim for delay is made as provided herein; and
3. Design-Build Entity submits a Time Impact Evaluation as required under Section 01 3230 (Progress Schedules and Reports) that demonstrates actual delay to critical Work activities that actually delay the progress of the Work in the amount of time requested.

D. Where Design-Build Entity is prevented from completing any part of the Work within the Contract Time due to delay beyond the control of both Owner and Design-Build Entity (including, but not limited to, adverse weather of all types and acts of other contractors or utilities), an extension of Contract Time, in an amount equal to the time lost due to such delay (without compensation), shall be Design-Build Entity's sole and exclusive remedy for such delay.

E. Delays due to abnormal or adverse weather conditions shall not exceed 36 calendar days per year. Adverse weather delays may be allowed only if the number of workdays of adverse weather exceeds these parameters on a monthly basis, and Design-Build Entity proves that adverse weather actually caused delays to work that is on the critical path. Design-Build Entity shall give written notice of intent to claim an adverse weather day within one Day of the adverse weather day occurring.

F. In order to qualify as an adverse weather delay with respect to the foregoing parameters, daily rainfall must exceed .1 of an inch or more as measured by the National Oceanic & Atmospheric Administration weather station closest to the Project.

G. Adverse weather delay for precipitation shall be recognized for the actual period of time Design-Build Entity proves it was delayed by precipitation exceeding the specified parameters. For example, and not by way of limitation, if precipitation exceeding the specified parameters does not in fact delay Design-Build Entity's progress on the critical path, then no time extension shall be recognized; and conversely, if Design-Build Entity proves to Owner's satisfaction that precipitation exceeding the specified parameters causes delay to Design-Build Entity for a period longer than the number of precipitation days incurred (e.g., if it rains or snows during grading work), then Design-Build Entity shall be entitled to a time extension equal to the actual period of such delay.

H. Design-Build Entity shall include the foregoing precipitation parameters as a monthly activity in its progress schedule. As Work on the critical path is affected by precipitation, Design-Build Entity shall notify Owner and request that the days be moved to the affected activities. Any adverse weather days remaining shall be considered Project float.

I. Design-Build Entity shall take reasonable steps to mitigate potential weather delays, such as dewatering the Site, and covering Work and material that could be affected adversely by weather. Failure to do so shall be cause for Owner to not grant a time extension due to adverse weather, where Design-Build Entity could have avoided or mitigated the potential delay by exercising reasonable care.

15.02 Notice Of Delay

A. Within seven Days of the beginning of any delay, Design-Build Entity shall notify Owner in writing, by submitting a notice of delay, of all anticipated delays resulting from the delay event in question. Within seven (7) additional days, Design-Build Entity shall provide a

written schedule document that demonstrates delay to the critical path using a Time Impact Evaluation as specified in Section 01 3230 (Progress Schedules and Reports). Owner will determine all claims and adjustments in the Contract Time. No claim for an adjustment in the Contract Time will be valid and such claim will be waived if not submitted in accordance with the requirements of this paragraph.

15.03 Time Extensions And/Or Damages Entitlements For Delays

A. Design-Build Entity may receive a time extension and be compensated for delays caused directly and solely by Owner.

B. Design-Build Entity may receive a time extension without compensation for delays resulting in whole or in part from causes beyond the reasonable control of Design-Build Entity and Owner, e.g. adverse weather conditions exceeding Contract Documents parameters, earthquakes, Acts of God and epidemics. In such cases, a time extension without compensation shall constitute Design-Build Entity's sole and exclusive remedy for such delays.

C. Design-Build Entity shall not be entitled to any time-related damages or compensation including, but not limited to, extended field or home office overhead, field supervision, costs of capital, interest, escalation charges, acceleration costs or other impacts for any delays caused in whole or in part by Design-Build Entity's failure to perform its obligations under the Contract Documents, or during periods of delay concurrently caused by Design-Build Entity and either Owner or others.

D. Design-Build Entity shall not be entitled to damages for delay to the Work caused by the following reasons:

1. Owner's right to sequence the Work in a manner which would avoid disruption to Owner's tenants and their contractors or other prime contractors and their respective subcontractors, exercised as a result of Design-Build Entity's failure to perform its cooperation and coordination responsibilities required by Contract Documents; Owner's enforcement of any government act or regulation; or the provisions of the Contract Documents;
2. For changed Site conditions that are beyond the parties' contemplation, except that Owner may approve direct costs associated with unknown conditions (but not costs or damages which result from such delays); and
3. Extensive requests for clarifications to Contract Documents or Contract Modifications thereto, provided such clarifications or Contract Modifications are processed by Owner or its consultants in a reasonable time commensurate with Contract Documents requirements.

15.04 Liquidated Damages

A. Time is of the essence. Execution of Contract Documents by Design-Build Entity shall constitute acknowledgement by Design-Build Entity that Design-Build Entity understands, has ascertained and agrees that Owner will actually sustain damages in the amount fixed in the Contract Documents for each and every Day during which completion of Work required is delayed beyond expiration of time fixed for completion or extensions of time allowed pursuant to provisions hereof. Design-Build Entity and Owner agree that specified

measures of liquidated damages shall be presumed to be the damages actually sustained by Owner as defined below, and that because of the nature of the Project, it would be impracticable or extremely difficult to fix the actual damages.

B. Liquidated damages shall be considered not as a penalty but as agreed monetary damage sustained by Owner for increased Project administration expenses, including extra inspection, construction management and architectural and engineering expenses related to the Project and Contract Documents because Design-Build Entity failed to perform and complete Work within time fixed for completion or extensions of time allowed pursuant to provisions hereof. Liquidated damages shall not be deemed to include within their scope additional damages or administrative costs arising from Defective Work, lost revenues, interest expenses, cost of completion of the Work, cost of substitute facilities, claims and fines of regulatory agencies, damages suffered by others or other forms of liability claimed against Owner as a result of delay (e.g., delay or delay related claims of other contractors, subcontractors or tenants), and defense costs thereof. Design-Build Entity shall be fully responsible for the actual amount of any such damages it causes, in addition to the liquidated damages otherwise due Owner.

C. Owner in its sole discretion may deduct from any money due or to become due to Design-Build Entity subsequent to time for completion of entire Work and extensions of time allowed pursuant to provisions hereof, a sum representing then-accrued liquidated damages. Should Design-Build Entity fall behind the approved Progress Schedule, Owner may deduct liquidated damages based on its estimated period of late completion. Owner need not wait until Final Completion to withhold liquidated damages from Design-Build Entity's progress payments. Should money due or to become due to Design-Build Entity be insufficient to cover aggregate liquidated damages due, then Design-Build Entity forthwith shall pay the remainder of the assessed liquidated damages to Owner.

ARTICLE 16 – WORKING CONDITIONS AND PREVAILING WAGES

16.01 Use of Site/Sanitary Rules

A. All portions of the Work shall be maintained at all times in neat, clean and sanitary condition. Design-Build Entity shall furnish toilets for use of Design-Build Entity's and Subcontractors' employees on the Site where needed, and their use shall be strictly enforced. All toilets shall be properly secluded from public observation, and shall be located, constructed and maintained subject to Owner's approval.

B. Design-Build Entity shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Site and land areas identified in and permitted by Contract Documents and other land and areas permitted by applicable laws and regulations, rights of way, permits and easements or as designated by Owner, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. Design-Build Entity shall assume full responsibility for any damage to any such land or area, any improvement located thereon, or to the owner or occupant thereof resulting from the performance of Work.

C. During the progress of the Work, Design-Build Entity shall keep the Site and the Project free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work, Design-Build Entity shall remove all waste materials,

rubbish and debris from and about the Site as well as all tools, appliances, construction equipment and machinery and surplus materials. Design-Build Entity shall leave the premises clean and ready for occupancy by Owner at Substantial Completion of Work. Design-Build Entity shall restore to original condition all property not designated for alteration by Contract Documents.

D. Design-Build Entity shall not load nor permit any part of any structure or pavement to be loaded in any manner that will endanger the structure or pavement, nor shall Design-Build Entity subject any part of Work or adjacent property to stresses or pressures that will endanger it. Design-Build Entity shall conduct all necessary existing conditions investigation regarding structural, mechanical, electrical or any other system existing, shall perform Work consistent with such existing conditions, and shall have full responsibility for insufficiencies or damage resulting from insufficiencies of existing systems, equipment or structures to accommodate performing the Work.

16.02 Protection Of Work, Persons, Property And Operations

A. Design-Build Entity shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with Work. Design-Build Entity shall comply with all safety requirements specified in any safety program established by Owner, or required by state, federal or local laws and ordinances. Design-Build Entity shall be responsible for all damage to Work, property or structures, all injuries to persons, and all damage and interruptions to Owner's operations, arising from the performance of Work of the Contract Documents. Except as otherwise expressly approved by Owner in writing, Design-Build Entity shall at all times perform all Work in a manner which does not interrupt, damage or otherwise adversely impact any facilities, operations, or real or personal property of Owner, its officers, employees, agents, invitees, licensees, lessees or contractors.

B. Design-Build Entity shall comply with all applicable laws and regulations of any public body having jurisdiction for safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Design-Build Entity shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property.

C. Design-Build Entity shall remedy all damage, injury, loss or interruption to any property or operations referred to above, caused, directly or indirectly, in whole or in part, by Design-Build Entity, any Subcontractor, supplier, or any other person or organization directly or indirectly employed by any of them to perform or furnish any Work or anyone for whose acts any of them may be liable. Design-Build Entity's duties and responsibility for safety and for protection of Work shall continue until such time as all the Work is completed and Final Acceptance of the Work. Owner and its agents do not assume any responsibility for collecting any indemnity from any person or persons causing damage to Design-Build Entity's Work.

D. Design-Build Entity shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

E. Owner may, at its option, retain such moneys due under the Contract Documents as Owner deems necessary until any and all suits or claims against Design-Build Entity for injury to persons, property or operations shall be settled and Owner receives satisfactory evidence to that effect.

16.03 Responsibility For Safety And Health

A. Design-Build Entity shall ensure that its and each tier of Subcontractors' employees, agents and invitees comply with applicable health and safety laws while at the Site. These laws include the Occupational Safety and Health Act of 1970 and rules and regulations issued pursuant thereto, and Owner's safety regulations as amended from time to time. Design-Build Entity shall comply with all Owner directions regarding protective clothing and gear.

B. Design-Build Entity shall be fully responsible for the safety of its and its Subcontractors' employees, agents and invitees on the Site. Design-Build Entity shall notify Owner, in writing, of the existence of hazardous conditions, property or equipment at the Site that are not under Design-Build Entity's control. Design-Build Entity shall be responsible for taking all the necessary precautions against injury to persons or damage to the property of Design-Build Entity, Subcontractors or persons from recognized hazards until the responsible party corrects the hazard. Design-Build Entity shall provide protective clothing and gear to all visitors to the Site.

C. Design-Build Entity shall confine all persons acting on its or its Subcontractors' behalf to that portion of the Site where Work under the Contract Documents is to be performed: Owner designated routes for ingress and egress thereto and any other Owner designated area. Except those routes for ingress and egress over which Design-Build Entity has no right of control, within such areas, Design-Build Entity shall provide safe means of access to all places at which persons may at any time have occasion to be present.

16.04 Emergencies

A. In emergencies affecting the safety or protection of persons or Work or property at the Site or adjacent thereto, Design-Build Entity, without special instruction or authorization from Owner, is obligated to act to prevent threat and damage, injury or loss, until directed otherwise by Owner. Design-Build Entity shall give Owner prompt written notice if Design-Build Entity believes that any significant changes in Work or variations from Contract Documents have been caused thereby. If Owner determines that a change in the Contract Documents is required because of the action taken by Design-Build Entity in response to such an emergency, a Change Order or Construction Change Directive will be issued to document the consequences of such action. Emergency contact names & phone numbers, where Design-Build Entity's Superintendent and Project Manager can be reached at any time, are to be provided to the Owner, within 10 days after issuance of a Notice to Proceed for any construction.

16.05 Use Of Roadways And Walkways

A. Design-Build Entity shall not unnecessarily interfere with use of any roadway, walkway or other facility for vehicular or pedestrian traffic. Before beginning any interference and only with Owner's prior concurrence, Design-Build Entity may provide detour or temporary

bridge for traffic to pass around or over the interference, which Design-Build Entity shall maintain in satisfactory condition as long as interference continues. Unless otherwise provided in the Contract Documents, Design-Build Entity shall bear the cost of these temporary facilities.

16.06 Nondiscrimination

A. No person or entity shall discriminate in the employment of persons upon public works because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, sexual preference, or gender of such persons, except as provided in Section 12940 of the Government Code. Every Design-Build Entity for public works violating the provisions of Section 1735 of the Labor Code is subject to all the penalties imposed for a violation of Chapter 1, Part 7, Division 2 of the Labor Code.

16.07 Prevailing Wages

A. Design-Build Entity shall pay to persons performing labor in and about Work provided for in the Contract Documents an amount equal to or more than the general prevailing rate of per diem wages for (1) work of a similar character in the locality in which the Work is performed and (2) legal holiday and overtime work in said locality. The per diem wages shall be an amount equal to or more than the stipulated rates contained in a schedule that has been ascertained and determined by the Director of the State Department of Industrial Relations and Owner to be the general prevailing rate of per diem wages for each craft or type of workman or mechanic needed to execute this Contract. Design-Build Entity shall also cause a copy of this determination of the prevailing rate of per diem wages to be posted at each Site.

B. Design-Build Entity shall forfeit, as a penalty to Owner, Fifty Dollars ($50.00) for each laborer, workman, or mechanic employed in performing labor in and about the Work provided for in the Contract Documents for each Day, or portion thereof, that such laborer, workman or mechanic is paid less than the said stipulated rates for any work done under the Contract Documents by him or her or by any Subcontractor under him or her, in violation of Articles 1 and 2 of Chapter 1 of Part 7 of Division II of the California Labor Code. The sums and amounts which shall be forfeited pursuant to this paragraph and the terms of the Labor Code shall be withheld and retained from payments due to Design-Build Entity under the Contract Documents, pursuant to this Document 00 7253 and the Labor Code, but no sum shall be so withheld, retained or forfeited except from the final payment without a full investigation by either the State Department of Industrial Relations or by Owner. The Labor Commissioner pursuant to Labor Code Section 1775 shall determine the final amount of forfeiture.

C. Design-Build Entity shall insert in every subcontract or other arrangement which Design-Build Entity may make for performance of work or labor on Work provided for in the Contract, provision that Subcontractor shall pay persons performing labor or rendering service under subcontract or other arrangement not less than the general prevailing rate of per diem wages for work of a similar character in the locality in which the Work is performed, and not less than the general prevailing rate of per diem wages for holiday and overtime work fixed in the Labor Code.

D. Design-Build Entity stipulates that it shall comply with all applicable wage and hour laws, including without limitation Labor Code Section 1813. Failure to so comply, including without limitation Labor Code Section 1776, shall constitute a default under this Contract.

E. Design-Build Entity and its Subcontractors shall be responsible for compliance with Labor Code Section 1776.

1. Design-Build Entity and Subcontractors must keep accurate payroll records, showing the name, address, social security number, Work classification, straight time and overtime hours worked each Day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with the Work of the Contract documents. Each payroll record shall contain or be verified by a written declaration as required by Labor Code Section 1776.
2. The payroll records enumerated above must be certified and shall be available for inspection at all reasonable hours at the principal office of Design-Build Entity as required by Labor Code Section 1776.
    a. (X) Design-Build Entity shall inform Owner of the location of records enumerated above, including the street address, city and Owner, and shall, within five working Days, provide a notice of a change of location and address.
    b. (Y) Design-Build Entity or Subcontractor has 10 Days in which to comply subsequent to receipt of a written notice requesting the records enumerated above. In the event that Design-Build Entity or Subcontractor fails to comply with the ten-Day period, he or she shall, as a penalty to Owner on whose behalf the contract is made or awarded, forfeit $25.00 for each calendar Day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due. Design-Build Entity is not subject to a penalty assessment pursuant to this paragraph due to the failure of a Subcontractor to comply with this paragraph.
3. Design-Build Entity shall also deliver certified payrolls to Owner with each Application for Payment as described in Section 00 2000 (Measurement and Payment).

F. Owner has not established a labor compliance program. Therefore, this Contract is subject to Public Contract Code Section 20133(b)(3)(B), which requires Owner to reimburse the Department of Industrial Relations (DIR) for certain costs of performing prevailing wage monitoring and enforcement on this Project. Design-Build Entity will be fully responsible for reporting to and providing all documentation and other information required by the DIR, and for paying all resulting penalties, fines, and other amounts due on account of any prevailing wage or other labor, wage or hour violation.

16.08 Environmental Controls

A. Design-Build Entity shall comply with all rules, regulations, ordinances, and statutes that apply to any work performed under the Contract Documents including, without limitation, any toxic, water and soil pollution controls and air pollution controls specified in Government Code, Section 11017 and as required by applicable Air Quality Management

District, California Water Quality Control Board, , and Best Management Practices. Design-Build Entity shall be responsible for insuring that Design-Build Entity's employees, Subcontractors and the public are protected from exposure to airborne hazards or contaminated water, soil or other toxic materials used during or generated by activities on the Site or associated with the Project.

16.09 Shoring Safety Plan

A. At least five Days in advance of excavating any trench five feet or more in depth, Design-Build Entity shall submit to Owner a detailed plan showing the shoring, bracing and sloping design and other provisions to be made for worker protection from the hazard of caving ground during the excavation, as required by Labor Code Section 6705. A civil or structural engineer registered in California shall prepare and sign any plan that varies from the shoring system standards established by the State Construction Safety Orders.

B. During the course of Work, Design-Build Entity shall be responsible for determining where sloping, shoring, and/or bracing is necessary and the adequacy of the design, installation, and maintenance of all shoring and bracing for all excavation, including any excavation less than five feet in depth. Design-Build Entity will be solely responsible for any damage or injuries that may result from excavating or trenching. Owner's acceptance of any drawings showing the shoring or bracing design or work schedule shall not relieve Design-Build Entity of its responsibilities under this paragraph.

C. Kern County must review and approve shoring of structures prior to commencement of shoring operations. Design-Build Entity shall submit shoring design sufficiently in advance of the Work as necessary to avoid delay.

D. Cal/OSHA Permit. Design-Build Entity shall comply with Labor Code 6500 and shall obtain, as applicable, a permit as required by Cal/OSHA for each of the following:

1. Construction of trenches or excavations that are five feet or more in depth and into which a person is required to descend.
2. Construction or demolition of any building, structure, or scaffolding for falsework more than three stories high, or the equivalent height (36 feet).
3. Erection or dismantling of vertical shoring systems more than three stories high, or the equivalent height (36 feet).
4. The underground use of diesel engines in mines or tunnels.

END OF DOCUMENT

DOCUMENT 00 7316

SUPPLEMENTARY CONDITIONS - INSURANCE AND INDEMNIFICATION
(Design-Build Including OCIP and Optional CCIP)

1 OWNER PROVIDED INSURANCE

1.1 Builder's Risk / Owner's Property Insurance.

1.1.1 Owner shall procure and maintain in effect a Builders' Risk insurance policy providing coverage for fire, explosion, vandalism, malicious mischief and collapse, to the extent reasonably available at a cost considered reasonable by Owner. Owner assumes the risks which would be insured by such a policy, whether or not the insurance is purchased; provided that Design-Build Entity, Subcontractors and Designers of all tiers shall remain fully responsible for all risks to the extent caused or exacerbated by any of their acts or omissions which would not be insured by such a policy. Earthquake and flood insurance may be included at the option of Owner, and in any event will be the responsibility of Owner. Such insurance shall be in an amount equal to the replacement cost of the completed Work (without deduction for depreciation) including costs to cover professional fees, as insured by the policy. This insurance, which may be subject to deductibles not to exceed Two Hundred Fifty Thousand Dollars ($250,000) per occurrence, shall cover building materials to be incorporated into the Work that are stored onsite, but shall not cover building materials that are off-Site or in transit, and shall not cover loss or damage to the tools, equipment, apparatus, scaffolding, hoists, forms, staging, shoring, any other items commonly referred to as construction equipment, personal property or other items belonging to or rented by Design-Build Entity or any Subcontractor which are not to be incorporated into the Work.

1.1.2 Design-Build Entity shall be responsible for an obligation in the applicable amount indicated in 1.1.3 below of any loss covered by the Builder's Risk policy related to or arising out of the acts, errors or omissions of Design-Build Entity, any Subcontractor or any Designer, or any other individual or entity for which Design-Build Entity is responsible.

1.1.3 The amount of the obligation shall be based on the amount of the initial Contract Price, as follows:

- $5,000 per occurrence for contracts $1,000,000 or under;
- $10,000 per occurrence for contracts from $1,000,001 to $5,000,000;
- $25,000 per occurrence for contracts of $5,000,000 or greater.

1.1.4 Builder's Risk policy shall name Design-Build Entity and the Subcontractors and Designers of all tiers as insureds. All proceeds of any loss covered by the Builders Risk policy shall be payable to Owner, who shall collect, adjust and distribute such proceeds, compromise any and all claims hereunder and apply the proceeds of such insurance to the repair, reconstruction or replacement of the Project.

1.2 Contractor's Pollution Insurance

1.2.1 Contractor's Pollution Liability Insurance on an occurrence basis, with limits of at least $10,000,000 per occurrence and $10,000,000 policy term aggregate for bodily injury, property damage, cleanup costs and claim expenses, arising at or emanating from the Project Site arising from all operations performed on behalf of the Owner.

1.2.2 Such insurance shall provide liability coverage for both sudden and gradual releases arising from the Work. CPL policy shall name Owner, Design-Build Entity and all Subcontractors of all tiers as insureds.

1.2.3 Contractor shall be responsible at its own expense for an obligation for each loss payable under this insurance that is attributable to the Design-Build Entity's acts, errors, or omissions, or the acts, errors, or omissions of any of its Subcontractors, or any other entity or person for whom Design-Build Entity may be responsible. The amount of the obligation shall be based on the amount of the initial Contract Price, as follows:

- $5,000 per occurrence for contracts $1,000,000 or under;
- $10,000 per occurrence for contracts from $1,000,001 to $5,000,000;
- $25,000 per occurrence for contracts of $5,000,000 or greater.

1.2.4 The portion of the obligation applying to the Design-Build Entity or Subcontractor shall be the responsibility of the Design Build Entity and shall remain uninsured. Design Build Entity shall promptly pay its charge pertaining to any loss. The Owner, in addition to its other remedies, may back charge Design-Build Entity for the obligation and deduct the back-charged amount from Design-Build Entity's next progress payment or final payment.

1.3 Waivers

1.3.1 Except for the obligation referenced in paragraph 1.1 above, Owner and Design-Build Entity waive all rights against each other and any of their consultants (including without limitation Construction Manager, Bridging Architect and their consultants), separate contractors, if any, Subcontractors, Designers, agents and employees, each of the other, and any of their contractors, subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by Builder's Risk insurance obtained pursuant to paragraph 1.1 above, or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner in good faith. Owner or Design-Build Entity, as appropriate, shall require of the separate contractors, if any, and the Subcontractors, Designers, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein.

The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to any individual or entity even if such individual or entity (a) would otherwise have a duty of indemnification, contractual or otherwise, (b) did not pay the insurance premium directly or indirectly, and (c) whether or not such individual or entity had an insurable interest in the property damaged. The only exceptions to this waiver of subrogation are for claims that may be covered by any Professional Liability insurance to the extent that insurance responds to any loss.

1.3.2 Owner waives subrogation rights under the Contractor's Pollution Liability Policy, to the greatest extent permitted by law, against all other project participants, including Design-Build Entity and Subcontractors of any tier.

1.4 Separate from OCIP

1.4.1 Owner is providing builder's risk insurance and Contractor's Pollution Liability insurance that are separate and distinct from any and all Owner Controlled Insurance Program (OCIP) or Contractor Controlled Insurance Program (CCIP) coverages. Insureds under the foregoing policies are separate from insureds under the OCIP or CCIP.

2 OTHER INSURANCE

See Exhibit I attached hereto and incorporated herein.

3 RESPONSIBILITY OF DESIGN-BUILDER AND INDEMNIFICATION

3.1 Design-Build Entity's Responsibility for the Work.

3.1.1 Except for damage caused by the sole negligence, willful misconduct or active negligence of Owner or its agents, Design-Build Entity shall be solely responsible for any loss or damage that may happen to any part of the Work, materials or other things used in performing the work, injury, sickness, disease, or death of any person as a result of the Work, or resulting damage to property.

3.1.2 Owner and each of its officers, employees, representatives, inspectors, consultants and agents including, but not limited to the Board, Construction Manager, Bridging Architect and each Owner Representative (**Owner Parties**), shall not be liable or accountable in any manner for loss or damage that may happen to any part of the Work; loss or damage to materials or other things used or employed in performing the Work; injury, sickness, disease, or death of any person as a result of the Work; or damage to property resulting from any cause whatsoever except their sole negligence, willful misconduct or active negligence, and Design-Build Entity releases all of the foregoing persons and entities from any and all such claims.

3.1.3 With respect to third-party claims against Design-Build Entity, Design-Build Entity waives any and all rights to any type of express or implied indemnity against each of the Owner Parties.

3.2 Claims Arising from the Work.

3.2.1 To the furthest extent permitted by law (including without limitation California Civil Code Section 2782), Design-Build Entity shall assume defense of, and indemnify and hold harmless, each of the Owner Parties, from and against claims, suits, actions, losses and liability of every kind, nature and description, including but not limited to claims and fines of regulatory agencies and attorney's fees and consultant's fees, directly or indirectly arising out of, connected with or resulting from performance of the Work, failure to perform the Work, or condition of the Work which is caused in whole or part by any act or omission of Design-Build Entity, Subcontractors, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

3.2.2 Design-Build Entity's indemnity obligation shall not apply to any indemnified party to the extent of its sole negligence or willful misconduct; nor shall it apply to Owner or other indemnified party to the extent of its active negligence.

3.2.3 In the event that a court of competent jurisdiction determines that California Civil Code Section 2782.8 applies to Design-Build Entity's indemnity and defense obligations under this paragraph 0, as to the design-related services provided by Design-Build Entity or its Subcontractors, then, with respect to such design-related services only, Design-Build Entity shall assume defense of, and indemnify and hold harmless, each of the Owner Parties, from and against claims, suits, actions, losses and liability of every kind, nature and description, including but not limited to claims and fines of regulatory agencies and attorney's fees and consultant's fees, that arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of Design-Build Entity or its Subcontractors in connection with the Work, Contract, or Project. However, irrespective of the applicability of California Civil Code Section 2782.8 as to design-related services, with respect to any non-design-related services (including without limitation construction services), Design-Build Entity shall assume defense of, and indemnify and hold harmless, each of the Owner Parties, in accordance with the other provisions of this paragraph 0.

3.3 Scope of Indemnification Obligation.

3.3.1 Approval or purchase of any insurance contracts or policies shall in no way relieve from liability nor limit the liability of Design-Build Entity, its Subcontractors of any tier, or the officers or agents of any of them. In the event of loss, however, Design-Build Entity shall give all required notices to all insurance carriers, and shall require its subcontractors to do the same. Owner may, in its discretion, request evidence of such notices from Design-Build Entity.

3.4 Scope of Contract Limitations of Liability.

3.4.1 To the furthest extent permitted by law (including, without limitation, Civil Code Section 2782), the indemnities, releases of liability and limitations of liability, claims procedures, and limitations of remedy expressed throughout Contract Documents shall apply even in the event of breach of contract, negligence (active or passive), fault or strict liability of the party(is) indemnified, released, or limited in liability, and shall

survive the termination, rescission, breach, abandonment, or completion of the Work or the terms of the Contract Documents.

END OF DOCUMENT

EXHIBIT 1

Design-Build Entity, General Contractor (if different than Design-Build Entity), Subcontractors, and Designers are required to obtain and maintain certain insurance coverages required by County, as set forth in this Exhibit "I". Article 1 - Insurance Requirements with OCIP Option, set forth below, states the insurance requirements for the Project in the event the County implements an Owner Controlled Insurance Program ("OCIP"). Article 2 - Insurance Requirements with CCIP Option, set forth below, states the insurance requirements in the event the County requires or permits the Design-Build Entity to provide some or all of the required insurance through a Contractor Controlled Insurance Program ("CCIP"). See Document 00 1119 (Request for Proposals) paragraph 3.02.F for Proposal requirements relating to the CCIP Option.

Article 1: - Insurance Requirements with OCIP Option.

1.1 Introduction. The provisions of this Article 1 - Insurance Requirements with OCIP Option, shall apply in the event County elects to implement an OCIP for the Project. Such election shall be made in writing by the County. The OCIP is more fully described in the Owner Controlled Insurance Program Procedures Manual, (the “Insurance Manual”) for the Project (Document 00 7318), which is incorporated herein by this reference. Parties performing labor or services at the Project site are eligible to enroll in the OCIP, unless they are Excluded Parties (as defined below). County has designated Alliant Insurance Services, Inc. as the OCIP Administrator (“OCIP Administrator”). The OCIP will provide to Enrolled Parties (as defined below) Workers’ Compensation and Employer’s Liability insurance, Commercial General Liability insurance, and Excess Liability insurance (hereinafter the "OCIP Coverages"), which are summarized below, in connection with the performance of the Work. Certain other obligations are set forth in the Owner Controlled Insurance Program Safety Standards manual (“Safety Manual”) for the Project (Document 00 7319).

1.2 Enrolled Parties and Their Insurance Obligations. OCIP Coverages shall cover Enrolled Parties. Enrolled Parties are: County, the OCIP Administrator, Design-Build Entity, General Contractor (if different than Design-Build Entity) and eligible Subcontractors of all tiers that enroll in the OCIP, and such other persons or entities as County may designate, in its sole discretion (each party insured under the OCIP is an “Enrolled Party.”)

In addition to the OCIP Coverages, Design-Build Entity, General Contractor (if different than Design-Build Entity), and all Eligible Subcontractors shall obtain and maintain the additional insurance required under paragraph 1.15, for risks that are not covered under the OCIP, including but not limited to Workers’ Compensation/Employer’s Liability Insurance, and Commercial General Liability Insurance for all off-site activities, and Automobile Liability insurance for all activities, both on-site and off-site.

1.3 Excluded Parties and Their Insurance Obligations. The OCIP Coverages do not provide any coverage to the following “Excluded Parties”:

a. structural demolition, hazardous materials remediation, removal and/or transport companies and their consultants;

b. architects, surveyors, engineers, and soil testing engineers, consultants, testing and balancing firms, security guard firms and other professional services firms;

c. vendors, suppliers, fabricators, material dealers, truckers, haulers, drivers and others who merely transport, pick up, deliver, or carry materials, personnel, parts or equipment, or any other items or persons to or from the Project site;

d. sole proprietors without Worker's Compensation insurance or health insurance, employee leasing firms, Exterior Insulation Finishing System contractors;

d. any subcontractor that does not perform any actual labor on the Project site; and

e. any other party or entity not specifically identified herein, that is excluded by County in its sole discretion, even if they are otherwise eligible.

Excluded Parties must obtain and at all times maintain the insurance required under paragraph 1.15, and maintain such insurance coverages for on-site and off-site risks.

1.4 OCIP Insurance Policies Establish the OCIP Coverages. The OCIP Coverages and exclusions summarized in this Article 1 are set forth in full in their respective insurance policies. The summary descriptions of the OCIP Coverages in this Article 1 or the Insurance Manual are not intended to be exhaustive or to alter or amend any provision of the OCIP Coverages. In the event any provision of this Article 1, the summary below, the Insurance Manual, or the Contract Documents conflicts with the OCIP insurance policies, the provisions of the OCIP insurance policies shall govern.

1.5 Summary of OCIP Coverages. OCIP Coverages shall apply only to those operations of each Enrolled Party performed at the Project site in connection with the Work, and only to Enrolled Parties that are eligible for the OCIP. OCIP coverages shall not apply to ineligible parties, even if they are erroneously enrolled in the OCIP. An Enrolled Party's operations away from the Project site, including product manufacturing, assembling, or otherwise, shall only be covered if such off-site operations are identified and are dedicated solely to the Project. OCIP Coverages shall not cover off-site operations until receipt by Enrolled Party of written acknowledgment of such coverage from the OCIP Administrator. A summary of the coverages provided under the OCIP is set out below:

Summary Only

	Coverages	Limits
(a)	Workers' Compensation Insurance	Statutory Limit
(b)	Employer's Liability Insurance	
	Bodily Injury by Accident, each accident	$1,000,000
	Bodily Injury by Disease, each employee	$1,000,000
	Bodily Injury by Disease, policy limit	$1,000,000
(c)	Commercial General Liability Insurance (Written on most current ISO Occurrence Form, or its equivalent)	

Each Occurrence Limit	$2,000,000
General Aggregate Limit for all Enrolled Parties	$4,000,000
Products & Completed Operations Aggregate for all Enrolled Parties	$4,000,000

Ten (10) Years Products & Completed Operations Extension

Major exclusions:

Nuclear Energy Liability	War
Terrorism	Total Pollution Exclusion
Asbestos & Silica	Lead
Employment Related Practices	Funghi & Bacteria
EIFS	

(d) Excess Liability Insurance
(over Employer's Liability & General Liability)

Combined Single Limit	$25,000,000
General Annual Aggregate for all Enrolled Parties	$25,000,000
Products & Completed Operations Aggregate for all Enrolled Parties	$25,000,000

Ten (10) Years Products & Completed Operations Extension

1.6 County's Insurance Obligations Under OCIP. County shall pay the costs of premiums for the OCIP Coverages. County shall receive or pay, as the case may be, all adjustments to such costs, whether by way of dividends, retroactive adjustments, return premiums, other moneys due, audits or otherwise. Design-Build Entity, General Contractor (if different than Design-Build Entity), and any enrolled Subcontractor hereby assigns to County the right to receive all such adjustments. County assumes no obligation to provide insurance other than that specified in this Article 1, and in the OCIP insurance policies. County's furnishing of OCIP Coverages shall in no way relieve or limit, or be construed to relieve or limit, Design-Build Entity, General Contractor (if different than Design-Build Entity) or any of its Subcontractors of any responsibility, liability, or obligation imposed by the Contract Documents, the OCIP insurance policies, or by law, including, without limitation, any indemnification obligations which Design-Build Entity, General Contractor (if different than Design-Build Entity) or any of its Subcontractors have to County. County reserves the right at its option, without obligation to do so, to furnish other insurance coverage of various types and limits provided that such coverage is not less than that specified in the Contract Documents.

1.7 OCIP Obligations of Design-Build Entity. Design-Build Entity shall:

a. Require by way of written contract agreement that the insurance requirements set forth in this Exhibit "I" are incorporated by reference into any agreement with a General Contractor (if different from Design-Build Entity), or any Subcontractor working on the Project.

b. Enroll in the OCIP using the Alliant WrapX system within five (5) days of execution of the Contract and maintain enrollment in the OCIP for the duration of the Contract, and ensure that General Contractor (if different from Design-Build Entity) and all eligible

Subcontractors enroll in the OCIP using the Alliant WrapX system with (5) days of contracting, and prior to the commencement of Work at the Project site, and maintain enrollment in the OCIP for the duration of their respective work. Instructions for access to Alliant WrapX are located in Section 8 (Appendix) of the Insurance Manual.

c. Comply with all of the administrative, safety, insurance, and other requirements applicable to the OCIP, as outlined in this Article 1, the Owner Controlled Insurance Program Procedures Manual, the Owner Controlled Insurance Program Safety Standards, the OCIP insurance policies, or elsewhere in the Contract Documents.

d. Provide to General Contractor (if different from Design-Build Entity) and each Subcontractor a copy of the Owner Controlled Insurance Program Procedures Manual and the Owner Controlled Insurance Program Safety Standards, and ensure General Contractor (if different from Design-Build Entity) and Subcontractor compliance with the provisions of the OCIP insurance policies, the Owner Controlled Insurance Program Procedures Manual and the Owner Controlled Insurance Program Safety Standards, and this Article 1. The failure of (a) County to include the Owner Controlled Insurance Program Procedures Manual or the Owner Controlled Insurance Program Safety Standards in the bid documents or (b) Design-Build Entity to provide a copy of the Owner Controlled Insurance Program Procedures Manual or the Owner Controlled Insurance Program Safety Standards to General Contractor or any Subcontractor shall not relieve General Contractor (if different than Design-Build Entity) or any Subcontractor of any of the obligations contained therein.

e. Acknowledge, and require General Contractor (if different than Design-Build Entity) and any Subcontractor to acknowledge, in writing, that County and the OCIP Administrator are not agents, partners or guarantors of the insurance companies providing coverage under the OCIP (each such insurer, an “OCIP Insurer”). Neither County nor the OCIP Administrator are responsible for any claims or disputes between or among Design-Build Entity, General Contractor (if different than Design-Build Entity), or any Subcontractor, on the one hand, and any OCIP Insurer(s) on the other hand. Neither County nor OCIP Administrator guarantees the solvency or the availability of limits of any OCIP Insurer(s). Any type of insurance coverage or limits of liability in addition to the OCIP Coverages that Design-Build Entity, General Contractor or any Subcontractor requires for its or their own protection, or that is required by applicable laws or regulations, shall be that party's sole responsibility and expense, and shall not be billed to County.

f. Cooperate fully with the OCIP Administrator and the OCIP Insurers, as applicable, in its or their administration of the OCIP.

g. Provide, within five (5) days of County's request, all documents or information requested by County in connection with the administration of the OCIP, including but not limited to payroll records, certified copies of insurance coverages, declaration pages, certificates of insurance, underwriting data, prior loss history information, safety records or history, OSHA citations, or construction cost estimates for this Project, or such other data or information as County, the OCIP Administrator, or OCIP Insurers may request in the administration of the OCIP. All such records shall be maintained through the term of the Contract and for a period of one (1) year thereafter.

h. Maintain and report monthly payroll records via Alliant WrapX system.

i. Comply, and require all of its subcontractors to comply with OCIP Administrator's instructions for electronically enrolling in the OCIP.

j. To the fullest extent permitted by law, Design-Builder will be responsible for a minimum Obligation ("Obligation") per occurrence for any claim for damages or injuries to third parties, including defense expenses, due to Design-Build Entity or Subcontractor of any tier's negligence (or negligence of any third party for whom Design-Build Entity or Subcontractor are responsible), in the applicable amount indicated below.

Contract Value (Bid/Proposal Price) @ Time of Loss Reported	Obligation
$Less than $1,000,000	$ 5,000
$1,000,001 to $5,000,000	$ 10,000
Over $5,000,000	$ 25,000

k. The Obligation shall remain uninsured by Design-Build Entity and Subcontractors of any tier, shall not be covered by the OCIP Coverages, and shall be charged to the negligent Enrolled Party (whether Design-Build Entity or Subcontractor) and due to Owner via deductive change order or as otherwise determined by Owner.

l. Have for itself, and require General Contractor (if different from Design-Build Entity) and all Subcontractors (other than Excluded Parties), to have an Experience Modification Rate (EMR) of 1.25 or less.

1.8 OCIP Pricing Net of Insurance Costs. Design-Build Entity shall exclude from its price proposal any actual or projected cost to provide the workers' compensation, employer's liability, commercial general liability, or excess liability insurance that is being provided under the OCIP. Design-Build Entity shall not include in any change order request, claim, or other request for payment or compensation any actual or projected cost to provide workers' compensation, employer's liability, commercial general liability, or excess liability insurance that is being provided under the OCIP. Actual or projected costs of insurance being provided under the OCIP includes the Design Build Entities' reduction in insurance costs due to eligibility for OCIP Coverages, as determined by using the Alliant WrapX system which includes the Enrollment Form and the Insurance Cost Worksheet, including reduction in insurance premiums, related taxes and assessments, markup on the insurance premiums and losses retained through the use of a self-funded program, self-insured retention, or deductible program. Instructions for access to Alliant WrapX are located in Section 8 (Appendix) of the Insurance Manual. Design-Build Entity shall also require General Contractor (if different from Design-Build Entity), and all Subcontractors to exclude from their price proposal, and from any change order request, claim, or other request for payment or compensation, any actual or projected cost to provide workers' compensation, employer's liability, commercial general liability, or excess liability insurance that is being provided under the OCIP.

1.9 Design-Build Entity's Representations and Warranties to County. Design-Build Entity represents and warrants to County:

a. All information Design-Build Entity submits to County, or to the OCIP Administrator, shall be accurate and complete.

b. Design-Build Entity has had the opportunity to read and analyze copies of the OCIP insurance policies that are on file in County's office, and Design-Build Entity understands the OCIP Coverages. Any reference or summary in this Article 1, Owner Controlled Insurance Program Procedures Manual, or elsewhere in any other Contract Document as to amount, nature, type or extent of OCIP Coverages or potential applicability to any potential claim or loss is for reference only. Design-Build Entity has not relied upon said reference, but solely upon its own independent review and analysis of the OCIP Coverages in formulating any understanding and/or belief as to amount, nature, type or extent of any OCIP Coverages and/or its potential applicability to any potential claim or loss.

c. Design-Build Entity has not included in its price proposal for the Project any actual or projected costs to provide the insurance coverages being provided under the OCIP, and these costs will not be included in any change order or any request for payment related to the Project.

d. Design-Build Entity acknowledges that County shall not pay or compensate Design-Build Entity, General Contractor (if different than Design-Build Entity), or any Subcontractor for any actual or projected costs to provide the insurance coverages being provided under the OCIP.

e. Design-Build Entity shall require General Contractor (if different from Design-Build Entity) and all Subcontractors to provide these same representations and warranties to County as part of any written agreement with those parties.

1.10 Audits. County, OCIP Administrator, and/or any OCIP Insurer shall have the right to audit the records of Design-Build Entity, General Contractor (if different from Design-Build Entity) or any Subcontractor, including but not limited to payroll records, project accounting records, insurance coverages, and insurance cost information, to verify that no party has included in any application for payment any actual or projected cost to provide the workers' compensation, employer's liability, commercial general liability, or excess liability insurance that is being provided by the County, under the OCIP.

1.11 County's Election to Modify or Discontinue the OCIP. County may, for any reason, modify the OCIP Coverages, discontinue the OCIP, or request that Design-Build Entity, General Contractor (if different from Design-Build Entity) or any Subcontractor withdraw from the OCIP upon thirty (30) days written notice. Upon such notice Design-Build Entity, General Contractor (if different from Design-Build Entity) or any Subcontractor, as specified by County in such notice, shall obtain and thereafter maintain during the performance of the Work, all (or a portion thereof as specified by County) of the OCIP Coverages. The form, content, limits of liability, cost, and the insurer issuing such replacement insurance shall be subject to County's approval.

1.12 Withholding Payments. County may withhold from any payment owed or owing to Design-Build Entity, General Contractor (if different from Design-Build Entity) or any Subcontractor any costs determined to be actual or projected costs to provide workers' compensation, employer's liability, commercial general liability, or excess liability insurance that is being

provided by the County under the OCIP. In the event an audit reveals that any party has included such costs in any request for payment, County shall have the right to deduct such costs from the contract price, including all audit costs.

1.13 Waiver of Subrogation. Where permitted by law, Design-Build Entity hereby waives all rights of recovery by subrogation because of deductible clauses, inadequacy of limits of any insurance policy, limitations or exclusions of coverage, or any other reason against County, the OCIP Administrator, its or their officers, agents, or employees, and any other contractor or subcontractor performing Work or rendering services on behalf of County in connection with the planning, development and construction of the Project. All Design-Build Entity maintained insurance coverage related to the Work shall include clauses providing that each insurer shall waive all of its rights of recovery by subrogation against County, the OCIP Administrator, its or their officers, agents, or employees, and any other contractor or subcontractor performing Work or rendering services on behalf of County in connection with the planning, development, and construction of the Project. Where permitted by law, Design-Build Entity shall require similar written express waivers and insurance clauses from General Contractor (if different from Design-Build Entity) and from all Subcontractors. A waiver of subrogation shall be effective as to any individual or entity even if such individual or entity (a) would otherwise have a duty of indemnification, contractual or otherwise, (b) did not pay the insurance premium directly or indirectly, and (c) whether or not such individual or entity has an insurable interest in the property damaged.

1.14 Conflicts. Any conflict between or among (a) the provisions of the OCIP insurance policies, (b) the Insurance Manual (Document 00 7318), (c) the Safety Manual (Document 00 7319) or (d) any provision of Contract Documents other than the Insurance Manual or Safety Manual, shall be resolved in the following order of priority:

1.14.1 the provisions of the OCIP insurance policies;

1.14.2 the provision of Contract Documents (other than the insurance Manual or Safety Manual); and

1.14.3 the Insurance Manual and the Safety Manual..

1.15 Additional Insurance Required From Enrolled and Excluded Parties. In addition to the insurance provided under the OCIP, Design-Build Entity, General Contractor (if different from Design-Build Entity), and all Subcontractors shall obtain and maintain the following insurance coverages.

Enrolled Parties shall provide Worker's Compensation, Employer's Liability, and General Liability, as set out below, for off-site activities, and Automobile Liability insurance for all activities, both on-site and off-site.

Excluded Parties must provide all insurance set out below for both on-site and off-site activities.

1.15.1: Workers' compensation/employer's liability. Design-Build Entity, General Contractor (if different from Design-Build Entity), and all Subcontractors shall obtain and maintain in full force and effect, at all times during the performance of

the Work, workers' compensation insurance (statutory limits complying with the laws of the State of California) and employer's liability insurance with limits not less than $1,000,000 bodily injury by accident (each accident), $1,000,000 bodily injury by disease (policy limit), and $1,000,000 bodily injury by disease (each employee). Such policies shall contain a waiver of subrogation in favor of County.

1.15.2: General Liability. Design-Build Entity, General Contractor (if different from Design-Build Entity), and all Subcontractors shall maintain in full force and effect, at all times during the performance of the Work, commercial general liability insurance, written on an occurrence policy form ("modified occurrence" and "claims-made" are not acceptable), including premises-operations (including explosion, collapse and underground coverage) and products-completed operations coverage, with limits of not less $1,000,000 bodily injury and property damage per occurrence limit, $2,000,000 general aggregate limit, $1,000,000 personal injury and advertising limit, and $2,000,000 products-completed operations aggregate limit. All liability policies shall provide, without limitation, severability of interests (full separation of insureds), contractual liability coverage (including coverage to the maximum extent possible for the indemnification contained in the Contract Documents), broad form property damage coverage (including completed operations) and a duty to defend in addition to (without reducing) the limits of the policy.

1.15.3: Automobile Liability. Design-Build Entity, General Contractor (if different from Design-Build Entity), and all Subcontractors shall maintain in full force and effect, at all times during the performance of the Work, commercial automobile liability insurance against claims of personal injury (including bodily injury and death) and property damage covering any vehicle and/or all owned, leased, hired and non-owned vehicles used in the performance of services pursuant to the Contract Documents, with limits of at least $1,000,000 each accident, or limits carried. The auto liability coverage shall be written on the most recent version of the ISO CA 00 01 coverage form.

1.15.4: Additional Insured Status. The commercial general liability and automobile liability insurance required in paragraph 1.15.2, and 1.15.3, above, shall include an endorsement naming the County of Kern and County's board members, officials, officers, agents, employees and volunteers as additional insureds for liability arising out of the Contract and any operations related thereto. Said endorsement shall be provided using one of the following three options: (i) on ISO form CG 20 10 11 85; or (ii) on ISO form CG 20 37 10 01 plus either ISO form CG 20 10 10 01 or CG 20 33 10 01; or (iii) on such other forms which provide coverage at least equal to or better than form CG 20 10 11 85.

1.15.5: Self-insured retentions. Any self-insured retentions in excess of $100,000 must be declared on the Certificate of Insurance or other documentation provided to Count and must be approved by the Kern County Risk Manager.

1.15.6: Professional Liability Insurance Requirements. Design-Build Entity shall provide professional liability insurance for the Project, as follows:

(a) providing coverage to Design-Build Entity, and to any contractor, subcontractor, Designer, architect, or engineering firm performing professional architectural or engineering services on behalf of Design-Build Entity, including full prior acts coverage, providing coverage for the professional services performed in connection with the Project, with a retroactive date of prior to the date of Document 00 5200 (Agreement) or performance of any services;

(b) limits of $10,000,000 per claim, and $10,000,000 annual aggregate, with deductibles or self-insured retentions acceptable to County.

(d) in the form of either (1) a professional liability policy specific to this Project, or (2) dedicated amounts from another Design-Build Entity professional liability policy(ies); and

(e) maintained continuously in effect during the performance of services in connection with the Project, and for a period of at least three (3) years beyond completion of the Project.

1.15.7: Duration and Cancellation. All insurance coverage required to be provided by Design-Build Entity, General Contractor (if different from Design-Build Entity), any Subcontractor, and any architectural or engineering firm shall be maintained until the completion of all of all work or services required under the Contract, unless a different time period is set out herein. Each insurance policy supplied by Design-Build Entity, General Contractor (if different from Design-Build Entity), any Subcontractor, and any architectural or engineering firm shall not be suspended, voided, modified, canceled, or reduced in coverage or in limits except after ten (10) days notice by the insured party in the case of non-payment of premiums, or on thirty (30) days prior written notice in all other cases. This notice requirement does not waive the insurance requirements stated herein. Design-Build Entity, General Contractor (if different from Design-Build Entity), any Subcontractor, and any architectural or engineering firm whose insurance policy is terminated, canceled, non-renewed, whose policy limits have been exhausted, or upon insolvency of the insurer shall immediately obtain replacement coverage in compliance with the requirements herein.

1.15.8: Best's Rating. All insurance obtained or maintained by Design-Build Entity, General Contractor (if different from Design-Build Entity), any Subcontractor, or any architectural or engineering firm performing services on behalf of Design-Build Entity, shall be issued by a company or companies admitted to do business in California and listed in the current "Best's Key Rating Guide" publication with a minimum rating of A-; VII. Any exception to these requirements must be pre-approved by the County Risk Manager.

1.15.9: Primary and non-contributing. All insurance obtained or maintained by Design-Build Entity, General Contractor (if different from Design-Build Entity), any Subcontractor, or any architectural or engineering firm performing services on behalf of Design-Build Entity shall be primary to and not contributing to any other insurance or self-insurance maintained by County. An endorsement shall be

provided on all policies which shall waive any right of recovery (waiver of subrogation) against County.

1.15.10: No Release of Liability. Insurance coverage's in the minimum amounts set forth herein shall not be construed to relieve Design-Build Entity, General Contractor (if different from Design-Build Entity), any Subcontractor, or any architectural or engineering firm performing services on behalf of Design-Build Entity of any liability, whether within, outside, or in excess of such coverage, and regardless of solvency or insolvency of the insurer that issues the coverage; nor shall it preclude County from taking such other actions as are available to it under any other provision of the Contract Documents or otherwise in law.

1.15.11: Failure to Maintain Coverage. Failure by Design-Build Entity, General Contractor (if different from Design-Build Entity), any Subcontractor, or any architectural or engineering firm performing services on behalf of Design-Build Entity to strictly comply with these insurance requirements shall be a material breach of the Contract. County, at its sole option, may terminate the Contract and pursue all available remedies. Alternatively, Contractor may purchase such required insurance coverage, and without further notice to Design-Build Entity, County shall deduct from sums due Design-Build Entity any premiums and associated costs advanced or paid by County for such insurance. If the balance due on the Contract is insufficient to reimburse County for the premiums and any associated costs, Design-Build Entity agrees to reimburse County for the premiums and pay for all costs associated with the purchase of said insurance. Any failure by County to take this alternative action shall not relieve Design-Build Entity (including any General Contractor, Subcontractor, or architectural or engineering firm performing work or services on behalf of Design-Build Entity) of their obligation to obtain and maintain the insurance coverages required by the Contract Documents.

1.15:12. Claims Against County. In the event of an injury to any employee of Design-Build Entity, General Contractor (if different from Design-Build Entity), or any Subcontractor, for which the employee, or the employee's dependents in the event of employee's death, are entitled to compensation from County under provisions of the Workers' Compensation Insurance and Safety Act, as amended, or for which compensation is claimed from County, County may retain out of sums due Design-Build Entity under the Contract, an amount sufficient to cover such compensation, as fixed by the Workers' Compensation Insurance and Safety Act, as amended, until such compensation is paid, or until it is determined that no compensation is due. If County is compelled to pay compensation, County may, in its discretion, either deduct and retain from the Contract Sum the amount so paid, or require Contractor to reimburse County.

Article 2: - Insurance Requirements with CCIP Option.

2.1 Introduction. The provisions of this Article 2 - Insurance Requirements with CCIP Option, shall apply in the event County elects to require or permit Design-Build Entity to use a CCIP as the vehicle to provide certain insurance coverage's required for the Project. Such election shall be made in writing by the County. In the event County elects to require or permit Design-Build Entity to provide a CCIP, the CCIP must comply, at minimum, with

the requirements set out in this Article 2. The CCIP must provide to Enrolled Parties (as defined below) Workers' Compensation and Employer's Liability insurance, Commercial General Liability insurance, and Excess Liability insurance (hereinafter the "CCIP Coverages"), which are summarized below, in connection with the performance of the Work.

2.2 Enrolled Parties and Their Insurance Obligations. CCIP Coverages must cover Enrolled Parties. Enrolled Parties are, at a minimum: County, Design-Build Entity, General Contractor and eligible Subcontractors of all tiers that enroll in the CCIP, and such other persons or entities as Design-Build Entity may designate, in its sole discretion (each party insured under the CCIP is an "Enrolled Party.")

In addition to the CCIP Coverages, Design-Build Entity, General Contractor, all Eligible Subcontractors, and any architectural or engineering firm providing services on behalf of Design-Build Entity must obtain and maintain the additional insurance required under paragraph 2.11 for risks that are not covered under the CCIP, including but not limited to Workers' Compensation/Employer's Liability Insurance, and Commercial General Liability Insurance for all off-site activities, and Automobile Liability insurance for all activities, both on-site and off-site.

2.3 Excluded Parties and Their Insurance Obligations. The CCIP may provide that certain parties, such as the type of parties listed below, shall not be entitled to any coverage, on the grounds they are "Excluded Parties":

a. Structural Demolition, Hazardous materials remediation, removal, and/or transport companies and their consultants;

b. Architects, surveyors, engineers, and soil testing engineers, consultants, testing and balancing firms; security firms and other professional services firms;

c. Vendors, suppliers, fabricators, material dealers, truckers, haulers, drivers, and others that merely transport, pick up, deliver, or carry materials, personnel, parts, or equipment, or any other items or persons to or from the Project Site;

d. Sole proprietors without Worker's Compensation insurance or health insurance; employee leasing firms; Exterior Insulation Finishing System contractors;

e. Subcontractors of any tier that do not perform any actual labor at the Project Site; and

f. any parties or entities specifically identified or excluded by the Owner, in its sole discretion, even if they are otherwise eligible.

Parties that are considered Excluded Parties under the CCIP must obtain and maintain all of the insurance required under paragraph 2.11 for all activities, including on-site and off-site risks.

2.4 CCIP Insurance Policies Establish the CCIP Coverages. The CCIP Coverages and exclusions summarized in this Article 2 are set forth in full in their respective insurance policies. The summary descriptions of the CCIP Coverages in this Article 2 or the Insurance Manual are not intended to be exhaustive or to alter or amend any provision of

the CCIP Coverages. In the event any provision of this Article 2, the summary below, any manual, safety standards or other document relating to the CCIP, or the Contract Documents conflicts with the CCIP insurance policies, the provisions of the CCIP insurance policies shall govern.

2.5 Summary of CCIP Coverages. CCIP Coverages shall provide, at a minimum, coverage for those operations of each Enrolled Party performed at the Project site in connection with the Work. CCIP Coverages shall apply only to Enrolled Parties who are eligible for the CCIP and are properly enrolled. CCIP Coverages must provide, at a minimum, the following coverages and limits:

Summary Only

	Coverages	Limits
(a)	Workers' Compensation Insurance	Statutory Limit
(b)	Employer's Liability Insurance	
	Bodily Injury by Accident, each accident	$1,000,000
	Bodily Injury by Disease, each employee	$1,000,000
	Bodily Injury by Disease, policy limit	$1,000,000
(c)	Commercial General Liability Insurance (Written on most current ISO Occurrence Form, or its equivalent)	
	Each Occurrence Limit	$2,000,000
	General Aggregate Limit for all Enrolled Parties	$4,000,000
	Products & Completed Operations Aggregate for all Enrolled Parties	$4,000,000
	Ten (10) Years Products & Completed Operations Extension	

Major exclusions:

Nuclear Energy Liability	War
Terrorism	Total Pollution Exclusion
Asbestos & Silica	Lead
Employment Related Practices	Funghi & Bacteria
EIFS	

(d)	Excess Liability Insurance (over Employer's Liability & General Liability)	
	Combined Single Limit	$25,000,000
	General Annual Aggregate for all Enrolled Parties	$25,000,000
	Products & Completed Operations Aggregate for all Enrolled Parties	$25,000,000
	Ten (10) Years Products & Completed Operations Extension	

2.6 Premium Obligations. In the event County elects the CCIP Option, Design-Build Entity, or General Contractor (if different from Design-Build Entity) shall pay the costs of premiums for the CCIP Coverages, and shall be entitled to receive or pay, as the case may be, all adjustments to such costs, whether by way of dividends, retroactive adjustments, return premiums, other moneys due, audits or otherwise.

2.7 CCIP Implementation. Design-Build Entity shall:

a. Require by way of written contract agreement with General Contractor (if different from Design-Build Entity), and all eligible Subcontractors, that the insurance provisions set forth in this Article 2 are incorporated by reference into any agreement with a General Contractor (if different from Design-Build Entity), or any Subcontractor working on the Project.

b. Require all eligible Subcontractors to enroll in the CCIP within five (5) days of execution of a subcontract, and maintain enrollment in the CCIP for the duration of their respective work.

c. Require all eligible Subcontractors to comply with all of the administrative, safety, insurance, and other requirements applicable to the CCIP, as outlined in this Article 2, a safety standards/manual approved by County, the CCIP insurance policies, or elsewhere in the Contract Documents.

d. Acknowledge, and require General Contractor (if different from General Contractor) and any Subcontractor to acknowledge, in writing: that County is not an agent, partner or guarantor of the insurance companies providing coverage under the CCIP (each such insurer, an "CCIP Insurer"); that County is not responsible for any claims or disputes between or among Design-Build Entity, General Contractor, or any Subcontractor, on the one hand, and any CCIP Insurer(s) on the other hand; and that County does not guarantee the solvency or the availability of limits of any CCIP Insurer(s).

e. Provide for electronic enrollment of all eligible parties in the CCIP, and provide County access to online CCIP reporting.

f. Have for itself, and require General Contractor (if different from Design-Build Entity) and all Subcontractors (other than Excluded Parties), to have an Experience Modification Rate (EMR) of 1.25 or less.

2.8 Disclosure of CCIP Pricing. Design-Build Entity shall separately identify its projected costs to provide the CCIP Coverages as provided in Document 00 4200 (Proposal Form), as part of the RFP response. If requested, Design-Build Entity shall also disclose to County all credits, offsets, or cost reductions obtained from any eligible Subcontractor to recoup or defray the cost of the CCIP Coverages.

2.9 Audits. County shall have the right to audit the records of Design-Build Entity, General Contractor (if different from Design-Build Entity) or any Subcontractor, including but not limited to payroll records, project accounting records, insurance coverages, and insurance cost information related to the implementation of the CCIP.

2.10 Waiver of Subrogation. To the greatest extent permitted by law, Design-Build Entity hereby waives all rights of recovery by subrogation because of deductible clauses, inadequacy of limits of any insurance policy, limitations or exclusions of coverage, or any other reason against County, its officers, agents, or employees, and any other contractor or subcontractor performing Work or rendering services on behalf of County in connection with the planning, development and construction of the Project. All Design-Build Entity maintained insurance coverage related to the Work shall include clauses providing that each insurer shall waive all of its rights of recovery by subrogation against County, its officers, agents, or employees, and any other contractor or subcontractor performing Work or rendering services on behalf of County in connection with the planning, development, and construction of the Project. To the greatest extent permitted by law, Design-Build Entity shall require similar written express waivers and insurance clauses from General Contractor (if different from Design-Build Entity) and from all Subcontractors. A waiver of subrogation shall be effective as to any individual or entity even if such individual or entity (a) would otherwise have a duty of indemnification, contractual or otherwise, (b) did not pay the insurance premium directly or indirectly, and (c) whether or not such individual or entity has an insurable interest in the property damaged.

2.11 Additional Insurance Required From Enrolled and Excluded Parties. In addition to the insurance provided under the CCIP, Design-Build Entity, General Contractor (if different from Design-Build Entity), any Subcontractor, and any architectural or engineering firm performing services on behalf of Design-Build Entity shall obtain and maintain the following insurance coverages.

Enrolled Parties shall provide Worker's Compensation, Employer's Liability, and General Liability, as set out below, for off-site activities, and Automobile Liability insurance for all activities, both on-site and off-site.

Excluded Parties must provide all insurance set out below for both on-site and off-site activities.

2.11.1: Workers' compensation/employer's liability. Design-Build Entity, General Contractor (if different from Design-Build Entity), and all Subcontractors shall obtain and maintain in full force and effect, at all times during the performance of the Work, workers' compensation insurance (statutory limits complying with the laws of the State of California) and employer's liability insurance with limits not less than $1,000,000 bodily injury by accident (each accident), $1,000,000 bodily injury by disease (policy limit), and $1,000,000 bodily injury by disease (each employee). Such policies shall contain a waiver of subrogation in favor of County.

2.11.2: General Liability. Design-Build Entity, General Contractor (if different from Design-Build Entity), and all Subcontractors shall maintain in full force and effect, at all times during the performance of the Work, commercial general liability insurance, written on an occurrence policy form ("modified occurrence" and "claims-made" are not acceptable), including premises-operations (including explosion, collapse and underground coverage) and products-completed operations coverage, with limits of not less $1,000,000 bodily injury and property damage per occurrence limit, $2,000,000 general aggregate limit, $1,000,000 personal injury and advertising limit, and $2,000,000 products-completed operations aggregate limit.

All liability policies shall provide, without limitation, severability of interests (full separation of insureds), contractual liability coverage (including coverage to the maximum extent possible for the indemnification contained in the Contract Documents), broad form property damage coverage (including completed operations) and a duty to defend in addition to (without reducing) the limits of the policy.

2.11.3: Automobile Liability. Design-Build Entity, General Contractor (if different from Design-Build Entity), and all Subcontractors shall maintain in full force and effect, at all times during the performance of the Work, commercial automobile liability insurance against claims of personal injury (including bodily injury and death) and property damage covering any vehicle and/or all owned, leased, hired and non-owned vehicles used in the performance of services pursuant to the Contract Documents, with limits of at least $1,000,000 each accident, or limits carried. The auto liability coverage shall be written on the most recent version of the ISO CA 00 01 coverage form.

2.11.4: Additional Insured Status. The commercial general liability and automobile liability insurance required in paragraph 2.11.2, and 2.11.3, above, shall include an endorsement naming the County of Kern and County's board members, officials, officers, agents, employees and volunteers as additional insureds for liability arising out of the Contract and any operations related thereto. Said endorsement shall be provided using one of the following three options: (i) on ISO form CG 20 10 11 85; or (ii) on ISO form CG 20 37 10 01 plus either ISO form CG 20 10 10 01 or CG 20 33 10 01; or (iii) on such other forms which provide coverage at least equal to or better than form CG 20 10 11 85.

2.11.5: Self-insured retentions. Any self-insured retentions in excess of $100,000 must be declared on the Certificate of Insurance or other documentation provided to Count and must be approved by the Kern County Risk Manager.

2.11.6: Professional Liability Insurance Requirements. See paragraph 1.15.6 above.

2.11.7: Duration and Cancellation. All insurance coverage required to be provided by Design-Build Entity, General Contractor (if different from Design-Build Entity), any Subcontractor, and any architectural or engineering firm shall be maintained until the completion of all of all work or services required under the Contract, unless a different time period is set out herein. Each insurance policy supplied by Design-Build Entity, General Contractor (if different from Design-Build Entity), any Subcontractor, and any architectural or engineering firm shall not be suspended, voided, modified, canceled, or reduced in coverage or in limits except after ten (10) days notice by the insured party in the case of non-payment of premiums, or on thirty (30) days prior written notice in all other cases. This notice requirement does not waive the insurance requirements stated herein. Design-Build Entity, General Contractor (if different from Design-Build Entity), any Subcontractor, and any architectural or engineering firm whose insurance policy that is terminated, canceled, non-renewed, or whose policy limits have been exhausted or upon insolvency of the insurer shall immediately obtain replacement coverage in compliance with the requirements herein.

2.11.8: Best's Rating. All insurance obtained or maintained by Design-Build Entity, General Contractor (if different from Design-Build Entity), any Subcontractor, or any architectural or engineering firm performing services on behalf of Design-Build Entity, shall be issued by a company or companies admitted to do business in California and listed in the current "Best's Key Rating Guide" publication with a minimum rating of A-; VII. Any exception to these requirements must be pre-approved by the County Risk Manager.

2.11.9: Primary and non-contributing. All insurance obtained or maintained by Design-Build Entity, General Contractor (if different from Design-Build Entity), any Subcontractor, or any architectural or engineering firm performing services on behalf of Design-Build Entity shall be primary to and not contributing to any other insurance or self-insurance maintained by County. An endorsement shall be provided on all policies which shall waive any right of recovery (waiver of subrogation) against County.

2.11.10: No Release of Liability. Insurance coverage's in the minimum amounts set forth herein shall not be construed to relieve Design-Build Entity, General Contractor (if different from Design-Build Entity), any Subcontractor, or any architectural or engineering firm performing services on behalf of Design-Build Entity of any liability, whether within, outside, or in excess of such coverage, and regardless of solvency or insolvency of the insurer that issues the coverage; nor shall it preclude County from taking such other actions as are available to it under any other provision of the Contract Documents or otherwise in law.

2.11.11: Failure to Maintain Coverage. Failure by Design-Build Entity, General Contractor (if different from Design-Build Entity), any Subcontractor, or any architectural or engineering firm performing services on behalf of Design-Build Entity to strictly comply with these insurance requirements shall be a material breach of the Contract. County, at its sole option, may terminate the Contract and pursue all available remedies. Alternatively, Contractor may purchase such required insurance coverage, and without further notice to Design-Build Entity, County shall deduct from sums due Design-Build Entity any premiums and associated costs advanced or paid by County for such insurance. If the balance due on the Contract is insufficient to reimburse County for the premiums and any associated costs, Design-Build Entity agrees to reimburse County for the premiums and pay for all costs associated with the purchase of said insurance. Any failure by County to take this alternative action shall not relieve Design-Build Entity (including any General Contractor, Subcontractor, or architectural or engineering firm performing work or services on behalf of Design-Build Entity) of their obligation to obtain and maintain the insurance coverages required by the Contract Documents.

2.11:12. Worker Claims Against County. In the event of an injury to any employee of Design-Build Entity, General Contractor (if different from Design-Build Entity), or any Subcontractor, for which the employee, or the employee's dependents in the event of employee's death, are entitled to compensation from County under provisions of the Workers' Compensation Insurance and Safety Act, as amended, or for which compensation is claimed from County, County may retain out of sums due Design-Build Entity under the Contract, an amount sufficient to cover such

compensation, as fixed by the Workers' Compensation Insurance and Safety Act, as amended, until such compensation is paid, or until it is determined that no compensation is due. If County is compelled to pay compensation, County may, in its discretion, either deduct and retain from the Contract Sum the amount so paid, or require Contractor to reimburse County.

END OF EXHIBIT

DOCUMENT 00 7318

INSURANCE MANUAL

[Attached]

END OF DOCUMENT

DOCUMENT 00 7319

SAFETY MANUAL

[Attached]

END OF DOCUMENT

DOCUMENT 00 7380

APPRENTICESHIP PROGRAM

ARTICLE 1 - COMPLIANCE REQUIRED

1.01 Design-Build Entity and Subcontractors shall comply with the requirements of California Labor Code §§1776, 1777.5, and 1777.6 concerning the employment of apprentices by Design-Build Entity or Subcontractors. Willful failure to comply may result in penalties, including loss of the right to Bid on or receive public works contracts.

ARTICLE 2 - CERTIFICATION OF APPROVAL

2.01 California Labor Code §1777.5, as amended, and Public Contract Code Section 20133 requires any Design-Build Entity or Subcontractor employing tradespersons in any apprenticeable occupation to apply to the joint apprenticeship committee nearest the site of a public works project and which administers the apprenticeship program in that trade for a certification of approval. The certificate shall also fix the ratio of apprentices to journeypersons that will be used in performance of the Contract. The ratio of work performed by apprentices to journeypersons in such cases shall not be less than one *hour* of apprentices work for every five *hours* of labor performed by journeypersons (the minimum ratio for the land surveyor classification shall not be less than one apprentice for each five journeypersons), except:

A. When unemployment for the previous three-month period in the area exceeds an average of 15 percent;

B. When the number of apprentices in training in the area exceeds a ratio of one to five;

C. When a trade can show that it is replacing at least 1/30 of its membership through apprenticeship training on an annual basis state-wide or locally; or

D. Assignment of an apprentice to any work performed under a public works contract would create a condition which would jeopardize his or her life or the life, safety, or property of fellow employees or the public at large or if the specific task to which the apprentice is to be assigned is of such a nature that training cannot be provided by a journeyperson.

ARTICLE 3 - FUND CONTRIBUTIONS

3.01 Design-Build Entity is required to make contributions to funds established for administration of apprenticeship programs if Design-Build Entity employs registered apprentices or journeypersons in any apprenticeable trade on such contracts and if other contractors on the public works site are making such contributions.

ARTICLE 4 - APPRENTICESHIP STANDARDS

4.01 Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of the California Department of Industrial Relations, or from the Division of Apprenticeship Standards and its branch offices.

END OF DOCUMENT

DOCUMENT 00 9113

ADDENDA

PROPOSAL NUMBER [INSERT NUMBER]

COUNTY OF KERN

KERN COUNTY BHRS PSYYCHIATRIC HEALTH FACILITY PROJECT

BAKERSFIELD, CA

[DOCUMENT TO BE COMPLETED AS ADDENDA ARE ISSUED DURING PROPOSAL PERIOD]

[If a conformed copy is created, delete bracketed line above and replace with the following:]

The following Addenda were issued, modifying the Project Manual:

Addendum No. 1, issued on **[date]**

Addendum No. 2, issued on **[date]**

[continue as appropriate]

(Addenda have been incorporated into the conformed Project Manual.)

END OF DOCUMENT

SECTION 01 1100

SUMMARY OF WORK (DESIGN-BUILD)

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section includes Summary of Construction Work and Work Restrictions including, but not limited to, the following:

1. Work Covered by Contract Documents.
2. Work Days and Hours.
3. Shutdown for Discovery of Cultural Resources.
4. Cooperation of Design-Build Entity and Coordination with Other Work.
5. Partial Occupancy / Utilization Requirements.
6. Design-Build Entity Use of Site.
7. Air Quality Standards.
8. Construction Staking and Monument Protection.
9. Protection of Existing Structures and Underground Facilities.
10. Permits.

1.03 CONSTRUCTION WORK COVERED BY CONTRACT DOCUMENTS

A. Construction Work comprises the construction of Kern County BHRS Psychiatric Health Facility located in Bakersfield, California. The Work includes, without limitation, as defined in Document 00 5201 (Bridging Documents) and Annex 1. Contract Documents (including without limitation final approved Construction Documents required by all Agencies having Jurisdiction) fully describe the Work.

B. The Work of this Contract comprises construction of all the Work indicated, described in the Bridging Documents, or otherwise required by the Contract Documents. Unless provided otherwise in the Contract Documents, all risk of loss to Work covered by Contract Documents shall rest with Design-Build Entity until Final Acceptance of the Work. Cost of maintenance of systems and equipment prior to Final Acceptance will be considered as included in prices set forth in the Contract Documents and no direct or additional payment will be made therefore.

C. For all Contract items, furnish and install all Work, including connections to existing systems, indicated and described in Specifications and all other Contract Documents. Work and requirements applicable to each individual Contract item, or unit of Work, shall be deemed incorporated into the description of each Contract item. Any Contract item may be deleted from the Work and Contract Sum, in total or in part, prior to or after award of Contract without compensation in any form or adjustment of other Contract items or prices therefore.

1.04 NEGOTIATED CONTRACT ITEMS, ALLOWANCES AND ALTERNATES

A. Allowances: There are no allowances for this Project.

B. Alternates:

1. Additive Enhancements (Voluntary) that do not become part of the Work at the time of award shall each become an Alternate, with the Price contained in the Proposal Form remaining fixed throughout the term of the Contract.

2. Voluntary Enhancements that do not become part of the Work at the time of award shall each become an Alternate, with the Price contained in the Proposal Form remaining fixed throughout the term of the Contract.

3. Deductive Items that do not become part of the Work at the time of award shall each become an Alternate, with the Price contained in the Proposal Form remaining fixed throughout the term of the Contract.

4. Alternative Technical Concepts that do not become part of the Work at the time of award shall each become an Alternate, with the Price contained in the Proposal Form remaining fixed throughout the term of the Contract.

5. Contractor Controlled Insurance Program (CCIP) Option: See Document 00 7316 (Supplemental Conditions – Insurance and Indemnification), Exhibit I, Article 2. Design-Build Entity shall provide pricing for the CCIP Option in its Document 00 4200 (Proposal Form).

1.05 WORK DAYS AND HOURS

A. Work Days and hours: Monday-Friday inclusive, **7:00 a.m.-5:00 p.m.** local time unless Design-Build Entity requests otherwise from Owner in writing at least 48 hours in advance and Owner approves in its sole discretion.

B. Work at the Site on weekends or holidays is not permitted, unless Design-Build Entity requests otherwise from Owner in writing at least 48 hours in advance and Owner approves in its sole discretion.

1.06 SHUTDOWN FOR DISCOVERY OF CULTURAL RESOURCES

A. If discovery is made of items of historical archaeological or paleontological interest, immediately cease all Work in the area of discovery. Archaeological indicators may include, but are not limited to, dwelling sites, locally darkened soils, stone implements or other artifacts, fragments of glass or ceramics, animal bones, human bones, and fossils. After cessation of excavation, immediately contact Owner. Do not resume Work until authorization is received from Owner. When resumed, excavation or other activities shall be as directed by Owner.

1.07 COOPERATION OF DESIGN-BUILD ENTITY AND COORDINATION WITH OTHER WORK

A. Coordinate with Owner and any Owner forces, or other contractors and forces, as required by Document 00 7253 (General Conditions – Design-Build).

1.08 PARTIAL OCCUPANCY / UTILIZATION REQUIREMENTS

A. Allow Owner to take possession of and use any completed or partially completed portion of the Work during the progress of the Work as soon as is possible without interference to the Work.

B. Possession, use of Work, and placement and installation of equipment by Owner shall not in any way evidence the completion of the Work or any part of it.

C. Design-Build Entity shall not be held responsible for damage to the occupied part of the Work resulting from Owner occupancy.

D. Make available, in areas occupied, on a 24 hour per day and 7 day per week basis if required, any utility services, heating, and cooling in condition to be put in operation at the time of occupancy.

1. Responsibility for operation and maintenance of said equipment shall remain with Design-Build Entity.

2. Make, and Owner shall certify, an itemized list of each piece of equipment so operated with the date operation commences.

3. Itemized list noted above shall be basis for commencement of warranty period for equipment.

4. Owner shall pay for utility cost arising out of occupancy by Owner during construction.

E. Use and occupancy by Owner prior to acceptance of Work does not relieve Design-Build Entity of its responsibility to maintain insurance and bonds required under the Contract until entire Work is completed and accepted by Owner.

F. Prior to date of Final Acceptance of the Work by Owner, all necessary repairs or renewals in Work or part thereof so used, not due to ordinary wear and tear, but due to Defective materials or workmanship or to operations of Design-Build Entity, shall be made at expense of Design-Build Entity, as required in Document 00 7253 (General Conditions – Design-Build).

G. Use by Owner of Work or part thereof as contemplated by this Section 01 1100 shall in no case be construed as constituting acceptance of Work or any part thereof. Such use shall neither relieve Design-Build Entity of any responsibilities under Contract, nor act as waiver by Owner of any of the conditions thereof.

H. Owner may specify in the Contract Documents that portions of the Work, including electrical and mechanical systems or separate structures, shall be substantially completed on dates described in this Section 01 1100, if any, prior to Substantial Completion of all of the Work. Notify Owner in writing when Design-Build Entity considers any such part of the Work ready for its intended use and Substantially Complete and request Owner to issue a Certificate of Substantial Completion for that part of the Work.

1.09 DESIGN-BUILD ENTITY USE OF SITE

A. KERN COUNTY BHRS PSYCHIATRIC HEALTH FACILITY - “Site” area for the Kern County BHRS Psychiatric Health Facility, is defined in the Bridging Documents. In exercising its control over the site, Design-Build Entity shall, without limitation:

1. Confine operations at Site to areas permitted by Contract Documents, permits, ordinances, and laws. Do not unreasonably encumber Site with materials or equipment.

2. Assume full responsibility for protection and safekeeping of products stored on premises. Move any stored products that interfere with operations of Owner or other contractor.

3. Coordinate parking, storage, staging, and Work areas with Owner and in accordance with the Bridging Documents. Owner will not provide a storage area for Design-Build Entity's equipment and materials beyond the “site” areas described in this paragraph 1.09.

B. Prior to commencement of Work or excavation, Design-Build Entity and Owner shall jointly survey the area adjacent to the Project area making permanent note and record of such existing damage such as cracks, sags or other similar damage. This record shall serve as a basis for determination of subsequent damage to structures, conditions or other existing improvements due to Design-Build Entity's operations. All parties making the survey shall sign the official record of existing damage. Cracks, sags or damage of any nature to the adjacent Project area, not noted in the original survey but subsequently noted, shall be reported immediately to Owner.

C. The Design-Build Entity shall follow all County ordinances in force during the duration of this Contract. The Design-Build Entity shall follow all City ordinances in force during the duration of this Contract when working in the City right-of-way. It is essential that the Design-Build Entity perform the Work with as little interference and disturbance as possible to the surrounding streets.

D. When suspect materials, outside the scope of Work, are encountered during the Work or restoration process, the Design-Build Entity shall immediately contact the Project Manager for evaluation and approval of the methods for dealing with the material.

1.10 AIR QUALITY STANDARDS

A. Ensure that idling time for all heavy equipment is minimized to reduce on-Site emissions.

B. Maintain equipment in good mechanical condition.

C. Cover trucks hauling dirt.

D. Limit dust emissions during periods of high winds (greater than 15 miles per hour).

E. Replace ground cover in disturbed areas as soon as possible.

F. Enclose, cover, water, or apply soil binders to exposed stockpiles.

G. Remove earth tracked onto neighboring paved roads at least once daily.

H. Limit equipment speed to 10 miles per hour in unpaved areas.

1.11 CONSTRUCTION STAKING AND MONUMENT PROTECTION

A. Notify Owner 3 Business Days prior to the need for initial staking. Owner will provide engineering surveys to establish construction stakes that in Owner's judgment are necessary to enable Design-Build Entity to proceed with the Work.

B. If Design-Build Entity finds any additional staking necessary, notify Owner in writing 2 Business Days in advance. Owner shall have no liability for any inadequacy unless Design-Build Entity notifies Owner and Owner fails to cure within 3 Business Days of such notice.

C. Design-Build Entity shall be responsible for laying out the Work, shall protect and preserve the established construction stakes and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Whenever Design-Build Entity knows or reasonably should know that any Work activity is likely to damage or destroy any construction stakes or property monuments, or require relocation because of necessary changes in grades or locations, provide at least 2 Business Days advance notice to Owner. In any event, notify Owner whenever any construction stakes or property monuments are lost or destroyed or require relocation because of necessary changes in grades or locations. Owner shall replace or repair construction stakes or property monuments at Design-Build Entity's expense.

D. Perform brush clearing and traffic control, as necessary, in Owner's sole judgment.

E. Illegible survey requests or requests for surveys without proper (at least 3 Business Days) notification, may result in delayed surveys. No extension of Contract Time will be allowed due to such delays.

F. If Owner's survey crews are not available to perform the survey staking following proper notification, Design-Build Entity shall provide its own survey staking. Provide Owner with Design-Build Entity's survey staking information in writing within 3 Business Days after it becomes available to Design-Build Entity.

1.12 GEOTECHNICAL DATA AND EXISTING CONDITIONS

A. Available Documentation: In accordance with, and subject to, the provisions of Document 00 3100 (Available Project Information) and Document 00 3132 (Geotechnical Data and Existing Conditions), the following documentation is available for review. This information is not part of the Contract Documents.

1. Refer to Document 00 3100 (Available Project Information) and Document 00 3132 (Geotechnical Data and Existing Conditions).

1.13 PROTECTION OF EXISTING STRUCTURES AND UNDERGROUND FACILITIES

A. Refer to Section 02 1725 (Existing Site Utilities) for additional information and requirements.

B. Perform pot-holing by hand within 24-inches (in any direction) of the Underground Facilities. This may be done on an area-by-area basis, but shall be accomplished at least 7 Days in advance of the date of construction within such area.

C. In addition to reporting, if a utility is damaged, Design-Build Entity must take appropriate action as provided in Document 00 7253 (General Conditions – Design-Build).

1.14 PERMITS

A. Permits, agreements, or written authorizations that are known by Owner to apply to this Project are listed below:

1. Storm Water Pollution Prevention.

2. Cal / OSHA Permit. Obtain, as applicable, permit(s) as required by Cal / OSHA for the following:

   a. Construction of trenches or excavations that are five feet or more in depth and into which a person is required to descend.

   b. Construction or demolition of any building, structure, or scaffolding for falsework more than three stories high, or the equivalent height (36 feet).

   c. Erection or dismantling of vertical shoring systems more than three stories high, or the equivalent height (36 feet).

B. All other permits that may be required, such as electrical, fire prevention, irrigation, grading, etc., have not been applied for and shall be obtained by Design-Build Entity. Applicable permit fees will be reimbursed to the extent specified in Document 00 7253 (General Conditions – Design-Build).

1.15 ACTUAL DAMAGES FOR PERMIT VIOLATIONS

A. In addition to damages which are impracticable or extremely difficult to determine, for which liquidated damages will be assessed as described in Document 00 5200 (Agreement) and Document 00 7253 (General Conditions – Design-Build), Owner may incur actual damages, including fines imposed by any regulatory agency, resulting from failure to obtain proper permits or violation of legal or regulatory requirements where the violations result from Design-Build Entity's activities.

B. Design-Build Entity shall be liable for and shall pay Owner the amount of any actual losses in addition to liquidated damages or other remedies provided by the Contract Documents.

C. The amount of liquidated damages provided in Document 00 5200 (Agreement) and Document 00 7253 (General Conditions – Design-Build) is not intended to include, nor does the amount include, any damages incurred by Owner for reasons other than those listed in that paragraph. Any money due or to become due to Design-Build Entity may be retained by Owner to cover both the liquidated and the actual damages described above and, should such money not be sufficient to cover such damages, Owner shall have the right to recover the balance from Design-Build Entity or its sureties.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 1101

SUMMARY OF WORK – DESIGN-BUILD DESIGN SERVICES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. This section includes specific Design-Build Entity design obligations including:

1. Preliminary Design Services.

2. Construction Documents and Construction Phase Design Services.

3. Project Close–Out Phase Services.

4. Design-Build Entity's Responsibility for Finished Construction.

B. Unless specifically excluded from this Contract, Design-Build Entity shall provide Owner with all professional architectural, engineering and design services, including without limitation all civil, electrical, fire protection, mechanical, structural engineering, landscape, and cost estimating services necessary to perform Design-Build Entity's design obligations under this Section 01 1101 and other provisions of Contract Documents, including Bridging Documents, and to complete the Project.

1.03 DELIVERABLES REQUIRED UNDER THIS SECTION - GENERALLY

A. All deliverables required under this Section shall be submitted in full compliance with the Contract Documents, shall be submitted in at least triplicate (or such greater number as the Owner may reasonably request) and, when contained on electronic media, shall be submitted in printed form as well as on electronic media when requested by Owner.

B. Deficiencies in deliverables and modifications to conform with Project requirements and modifications to achieve acceptability of deliverables to Owner, shall be promptly performed, and the cost thereof included in the Contract Price.

1.04 INCREMENTAL DESIGN PACKAGES

A. Design-Build Entity shall submit designs and deliverables meeting the requirements of this Section 01 1101. Design-Build Entity may, in its sole discretion, elect to create incremental packages of major building components or activities it deems advantageous towards scheduling or permitting efficiencies, and if it so elect shall comply with the requirements of this Section for each increment separately. Design-Build Entity shall be fully responsible for all consequences of electing incremental packages, including satisfying all Project milestones and deadlines.

B. In order to comply with the rules and regulations pertaining to State Lease Revenue Bond Financing projects, no construction work on any design package may be performed prior to Kern County Public Works - Building and Code Division approval of that design package.

1.05 CONSISTENCY WITH BRIDING DOCUMENTS

A. Design-Build Entity shall perform all design services consistent with the Project Bridging Documents for all stages of design. Design-Build Entity shall perform all design services in accordance with Document 00 5201 (Bridging Documents) and Document 00 7253 (General Conditions – Design-Build).

B. Bridging Documents set forth Owner's minimum design and construction requirements for the Project that Design-Build Entity must meet. Design-Build Entity shall prepare designs to meet these requirements and submit deliverables as described in this Section 01 1101. In the event of any conflict between the Bridging Documents and any other provision of Contract Documents, the more stringent requirement providing Owner with the greater scope of work shall control. The requirements of this Section 01 1101 supplement but do not supersede the requirements of Bridging Documents.

C. Bridging Documents may be amended or supplemented to include elements or ideas from Design-Build Entity's Proposal or other proposals, but only to the extent Owner expressly agrees in writing. Design-Build Entity is solely responsible for confirming the extent of any changes to the Bridging Documents.

1.06 DESIGNER AND DESIGNER AGREEMENTS

A. Design-Build Entity shall perform its design services using the Designers listed in its Proposal and may substitute Designers only with Owner's written consent, which may be withheld or delayed in District's discretion.

B. Design-Build Entity shall fully coordinate all architectural and engineering disciplines and Designers involved in completing the Work. All Designers shall fully coordinate with Design-Build Entity and all architectural and engineering disciplines and Designers involved in completing the Work.

C. To the extent of the Services to be performed by a Designer, Design-Build Entity shall require each Designer's written agreement (1) to be bound to the terms of Contract Documents and (2) to assume vis-à-vis Design-Build Entity all the obligations and responsibilities that Design-Build Entity assumes toward Owner under the Contract Documents. (These agreements include for example, and not by way of limitation, all ownership and copyrights in Designer work product, warranties, claims procedures and rules governing submittals of all types to which Design-Build Entity is subject under the Contract Documents.

D. Owner shall be deemed to be an intended third-party beneficiary of all Design agreements, and each such agreement shall so provide.

E. At Owner's request, Design-Build Entity shall provide Owner with a complete copy of all executed agreements between Designers and Design-Build Entity or between Designers (of any tier).

F. Owner at all times shall have the right (but not the duty) to review Design-Build Entity's design services, whether performed by Design-Build Entity or a Designer, and whether in a final or preliminary form, to determine progress and conformance to the requirements of Bridging Documents and other Contract Documents. In the event Owner should ever dispute the conformance of any design services (at any stage) with the intent of the Contract Documents, then Owner's determination shall control and Design-Build Entity and/or its Designers shall perform the disputed design services to completion in accord with Owner's determination. Design-Build Entity shall, however, retain its rights under the procedure in Document 00 7253 (General Conditions – Design-Build) Article 12 for claims and disputes, and Design-Build Entity may under that procedure, in its name, advance any claim of any Designer.

PART 2 - DESIGN SERVICES

2.01 PRELIMINARY DESIGN PHASES

A. Schematic Design Phase:

1. Period of Service.

a. After acceptance by Owner of Design-Build Entity's Proposal, execution of Contract Documents, and upon written authorization from Owner to proceed with design, Design-Build Entity shall proceed with the performance of Services called for in the Schematic Design Phase.

b. Design-Build Entity shall submit the deliverables required by the Schematic Design Phase.

c. All items that are inconsistent with Bridging Documents, other Owner program requirements, or other prior Owner directions or approvals, shall be expressly and separately identified and submitted for approval.

2. Schematic Design Phase Documents. Schematic Design Phase Documents shall consist of plans and reports containing conceptual layouts, sketches and schematic design criteria with appropriate exhibits, sufficient to present the complete concept of the Project, including all major elements of the building(s), system(s), machinery, equipment, structure(s), and site design(s), proposed for construction which complies with the current program and cost limitations. By way of example, documents in this phase shall include, but are not limited to, the following (where applicable):

    a. Plan list.

    b. Site plan(s).

    c. Wall sections and elevations.

    d. Outline specifications including architectural, structural, mechanical, electrical, and instrumentation systems and materials proposed.

    e. Project-specific analysis of codes, ordinances and regulations.

    f. Three-dimensional line plans or plans.

    g. Initial construction phasing recommendations.

    h. Tabulation of both gross and assignable floor areas including a comparison to the initial program area requirements.

3. Criteria. Reports, plans and exhibits shall incorporate all Bridging Documents requirements and any other Owner program requirements, and shall include structural concepts, site utilization plans, floor plans, elevations, sections, study perspectives and other plans necessary to describe the Project. Schematic Design Phase reports and exhibits shall indicate clearly the considerations involved, including but not limited to applicable requirements of governmental authorities having jurisdiction or private licensing, patent, easements, or other legal restrictions, as well as an exposition of how the design reflects the Owner's program objectives. Reports and exhibits shall indicate any alternative solutions available to Owner and set forth Design-Build Entity's findings and recommendations.

4. Design-Build Entity shall identify, analyze and conform to the requirements of governmental and private authorities having jurisdiction to approve the design of the Project and participate in consultations with such authorities.

5. Owner Review. Design-Build Entity shall develop Schematic Design Phase reports, plans and exhibits until Owner has approved an acceptable design concept that complies with the intent of the Bridging Documents. Design-Build Entity shall participate in progress meetings with Owner representatives at Owner's request, up to twice monthly.

6. Design Basis Report. Design-Build Entity shall provide a narrative report by each design discipline describing its proposed design philosophy with a description of, and the rationale for: the proposed structural systems, mechanical systems, electrical, electronics and security systems, types of equipment, materials and finishes, and site development and landscaping as required by the Project. The rationale shall include initial costs, lifecycle costs, and life expectancy and maintenance considerations.

7. Present Schematic Documents to Owner. Design-Build Entity shall present Schematic Design Phase documents to Owner and secure its approval.

B. Design Development Phase:

1. Period of Service.

a. After acceptance by Owner of Design-Build Entity's Schematic Design Phase deliverables, and upon written authorization from Owner, Design-Build Entity shall proceed with the performance of the services called for in the Design Development Phase. The intent of Design-Build Entity's Design Development Phase submittal is to obtain Owner approval for design revisions, refinements, and concept elaborations produced by Design-Build Entity during Design Development prior to Construction Document production.

b. Design-Build Entity shall submit the deliverables required by the Design Development Phase.

c. Design-Build Entity shall at the outset of this Phase make full written disclosure to Owner, and obtain Owner's express written approval of any proposed innovative, unique, proprietary, or sole source design features. Owner retains full discretion to disapprove such features.

d. All items that are inconsistent with approved Schematic Phase Design Documents, or (unless previously approved) Bridging Documents, other Owner program requirements, or other prior Owner directions or approvals, shall be expressly and separately identified and submitted for approval.

2. Design Development Documents. Design-Build Entity shall prepare and submit to Owner design development documents. Design-Build Entity shall revise these documents consistent with the requirements and criteria established by Owner and shall meet with Owner and involved subconsultants twice monthly, to review and verify Owner gives its written confirmation of a Design Development Document. These documents shall include the following:

a. Final Design Criteria Plans (architectural, civil, electrical, mechanical and structural) sufficient to fix and illustrate project's scope and character in all essential design elements, including but not limited to, site plans, architectural, structural, mechanical, electrical and plumbing floor and equipment connection plans, elevations; cross sections and other mutually agreed upon plans deemed necessary to describe the developed design; single line electrical and mechanical plans, and structural plans with Schematic sizing of major structural elements.

b. Revised Drawing list.

c. A tabulation of both gross and assignable floor, pavement and/or yard areas in a comparison to the approved conceptual program area requirements and to the initial program area requirements.

d. As appropriate, Design-Build Entity shall provide to Owner for its approval a color and materials board, samples of textures and finishes of all materials proposed in the Work.

e. Recommendations for scheduling and phasing of construction.

f. Outline specifications for each technical specification section, following Construction Specification Institute 2016 conventions, with Part 2 Products of each section completed, describing the size, character and quality of the entire Project in its essentials as to kinds and locations of materials; equipment selections; and types of structural, mechanical and electrical systems. For major equipment and system specifications, Design-Build Entity shall also submit first cost and lifecycle cost analysis, with comparative analysis for the selected equipment/system item and two other alternative equipment / system items considered by Design-Build Entity but not selected.

g. Schematic engineering calculations for all disciplines, including realistic loads, and sufficiently complete for work on Construction Documents to proceed. Prepare for approval by Owner updated written design criteria for [mechanical, electrical and plumbing systems (for example, temperature, humidity, lighting levels and floor live load design shall be stated for general and special occupancy areas).

h. A grading and drainage plan and a site plan from architectural information showing a final development of the site. This Drawing will also include a horizontal and vertical control plan and utility connections to the infrastructure plan. The services described in this subparagraph shall be provided by a Designer who is a professional civil engineer under an agreement with Design-Build Entity.

3. Additional Data or Services. Design-Build Entity shall advise Owner in writing if additional data or services of the following types are necessary and obtain such data and services as directed in writing by Owner:

   a. Borings, probings and subsurface explorations, hydrographic surveys, laboratory tests and inspections of samples, materials and equipment;

   b. Appropriate professional interpretations of the foregoing; and

   c. Other special data or consultations necessary or useful in completion of the Project.

4. Report on Additional Permits or Reports. Advise in writing if any of the following are required:

   a. Governmental permits of any type; and

   b. Reports of any type to governmental agencies.

5. Review with Owner. Prepare, for review by Owner for compliance with Bridging Documents, written design criteria for mechanical, security, and electrical systems.

6. Kern County Public Works - Building and Code Division Coordination, etc. Design-Build Entity shall be fully responsible for obtaining and coordinating all necessary Kern County Public Works - Building and Code Division approvals, and all approvals from all other authorities having jurisdiction.

2.02 CONSTRUCTION DOCUMENTS AND CONSTRUCTION PHASES DESIGN SERVICES

A. Construction Documents Phase:

1. Period of Service.

   a. After acceptance by Owner of the Design Development Documents and any other required deliverables in the Design Development Phase, and upon written authorization from Owner, Design-Build Entity shall proceed with the performance of the services called for in the Construction Documents Phase.

   b. Design-Build Entity shall submit the deliverables required by the Construction Documents Phase within the stipulated period required in the Project Schedule.

   c. All items that are inconsistent with approved Design Development Documents, or (unless previously approved) Schematic Phase Design Documents, Bridging Documents, other Owner program requirements, or other prior Owner directions or approvals, shall be expressly and separately identified and submitted for approval.

2. Construction Documents. On the basis of the Owner-approved Design Development Documents, Design-Build Entity shall prepare final Drawings and Specifications (together, "Construction Documents") to show the work to be furnished and performed by Design-Build Entity. Construction Documents shall set forth in detail the requirements for construction of all Work to be performed, and shall be Contract Documents, but shall not supersede other Contract Documents (including Bridging Documents) where other Contract Documents contain a more stringent requirement.

3. Construction Documents shall be prepared in accordance with industry standards. Construction Documents Specifications shall be prepared in conformance with the thirty-three-division format of the Construction Specification Institute and paragraph 2.02A.5 below. Design-Build Entity shall have complete responsibility to secure timely review by all authorities with jurisdiction.

4. The same architectural and engineering team (and team personnel) that prepared the Design Development Documents shall complete the Construction Documents and do all final coordination and quality review of the Construction Documents, including without limitation, following revisions requested or final comments made by authorities with jurisdiction. Where Drawings and Specifications are submitted to the Kern County Public Works - Building and Code Division or other regulatory agencies and/or other authorities with jurisdiction, then the same architectural and engineering team (and team personnel) that prepared the submittal shall complete the Drawings and Specifications. If the submittal is incomplete in any manner, then Design-Build Entity shall continue working on Drawings and Specifications after the submittal in order to complete it, including completing all Designer services, fully coordinating the Drawings, and doing a quality control review. All Drawings shall be brought to ninety-five percent level of completion at either the submittal, or shortly thereafter, and then coordinated and checked. The purpose of this paragraph is to require Design-Build Entity to finish the design, so far as practical, either at the time of the submittal or shortly thereafter, to retain continuity in the design team and their familiarity with the Project. For good cause, Design-Build Entity may request relief from this paragraph. Owner may, but is not required to, conduct a peer review on the completed Drawings.

5. Format of Technical Specifications. Design-Build Entity shall prepare and transmit to Owner final technical specifications in conformance with the 2016 conventions of the Construction Specification Institute. Design-Build Entity shall cooperate with Owner in coordinating the Drawings and technical specifications with Owner's Divisions 00 and 01 General standard specifications included in Contract Documents.

6. Auto CAD and Other Electronic Data. Provide AutoCAD 2018 or Revit 2020 files of all Drawings including as-bid, as-built, and all record Drawings, in electronic formats as requested by Owner. Prepare electronic record sets and sets of reproducible record prints or Drawings showing those changes made during the construction process, based on the marked-up prints, marked-up Technical Specifications, Drawings and other data furnished by Design-Build Entity to Owner. Electronic data shall be generated in AutoCAD 2018 or Revit 2020 and shall conform to Owner standards package (to be supplied).

7. Compliance with Codes, Regulations and Requirements. All Drawings, Specifications, structural design calculations, site data, and cost estimates required by State or Federal law shall comply with State and federal standards. Design-Build Entity shall comply with any other requirements of authorities with jurisdiction over the Project or the Plans and Specifications. Design-Build Entity shall comply with the applicable standard of care when preparing Drawings and Specifications to comply with applicable building codes, ordinances, statutes, laws, standards, governmental regulations and private restrictions, applicable to the Services, including, but not limited to, those listed in Contract Documents, all environmental, energy conservation, and disabled access requirements, regulations and standards of the Kern County Public Works - Building and Code Division or other authorities having jurisdiction over the Project.

8. Supply of Design Calculations. Design-Build Entity shall provide Owner with copies of all final electrical, mechanical and structural design calculations, organized by specification. Design-Build Entity shall provide Owner with a final update on the final design criteria utilized.

9. Make full written disclosure to Owner, and obtain Owner's express written approval of any proposed innovative, unique, proprietary, or sole source design features.

10. Warranty. Design-Build Entity warrants to Owner that the final design, as expressed in the Construction Documents:

    a. Will be constructible, workable, watertight, and within Design-Build Entity's detailed Project schedule (per Section 01 3200 (Progress Schedules and Reports));

    b. Will comply in all respects with the requirements of the Contract Documents (including without limitation Bridging Documents);

    c. Will not call for the use of hazardous or banned materials; and

    d. Will fully comply with applicable building codes, ordinances, standards, governmental regulations, and private restrictions applicable to the Work.

11. Design-Build Entity shall prepare and submit draft Construction Documents at the 65% level of completion to Owner for review. Owner shall conduct such review as necessary on the 65% Construction Documents and shall advise Design-Build Entity of any necessary modifications, amendments and additions as reasonably required by Owner. Following receipt of Owner's comments, Design-Build Entity shall complete final Construction Documents. Such complete Construction Documents shall be deemed the Construction Documents for the Project.

12. Design-Build Entity shall take all steps to secure Kern County approvals and all other required reviews and approvals of the design documents.

13. Upon completion of Construction Documents, Design-Build Entity shall submit such Drawings and Specifications for approval to Owner's representatives (as Owner shall designate) and any other applicable agency, and obtain necessary permits for the construction and operation of the Project as specified in the Construction Documents. During the same time period, Design-Build Entity shall submit to Owner three (3) complete sets of Construction Documents for final approval.

14. Following Kern County approval of final Construction Documents, Design-Build entity shall provide a final Document 00 1115 (List of Final Drawings, Tables and Schedules) identifying all final Drawings and Specifications.

15. Permits. To the extent not otherwise provided in Section 01 1102 (Summary of Work – Design-Build Contractor Services) or other provisions of Contract Documents, Design-Build Entity shall assist Owner in securing all necessary permits and approvals, by identifying all necessary permits and approvals, securing necessary forms, and either applying for such permits and approvals in Design-Build Entity's name or by providing Owner with signature ready completed forms for Owner's review and execution. This duty includes, but is not limited to, providing technical criteria, written descriptions and design data for use in filing applications for permits with or obtaining approvals of such governmental authorities as have jurisdiction to approve the design of the Project, and engage in consultations with appropriate authorities.

B. Substitutions:

1. Design-Build Entity must base its design on products and systems specified in the Contract Documents or listed by name in Addenda.

2. Design-Build Entity may submit requests for substitutions (including without limitation "or equal" substitutions—see Document 00 7253 General Conditions – Design-Build paragraph 13.11) no later than 14 days before submission of final Construction Documents to Kern County Public Works - Building and Code Division for approval.

3. Submittals of substitutions shall contain all required information set forth in Document 00 6325 (Substitution Request Form) and Specification Section 01 6000 (Product Requirements). Insufficient information shall be grounds for rejection of substitution.

4. Subject to the foregoing, Owner may consider Specifications/Bridging Documents final upon Contract award, however, and will consider substitutions following award in its sole discretion.

C. Construction Phase:

1. Following Owner's acceptance and Kern County Kern County Public Works - Building and Code Division approval of Design-Build Entity's Construction Documents (or applicable portion thereof), Design-Build Entity may commence construction of the Project (or applicable portion thereof).

2. General Administration of Construction: Design-Build Entity's Designers shall make regular visits to the site at intervals appropriate to the various stages of construction as necessary to assure that construction conforms to the final design as approved.

3. Quality Control and Reporting: Design-Build Entity's Designers shall participate fully in Design-Build Entity's required quality control program and shall advise Design-Build Entity and Owner in writing of any observations of defective work, work not in conformance with Drawings and Specifications or other Contract Documents, and lack of progress consistent with the schedule of work in areas associated with their Services.

4. Coordination of Inspections: Design-Build Entity is responsible to coordinate inspections by Kern County Building and Code Division and to implement any corrections required by Kern County.

2.03 PROJECT CLOSE-OUT PHASE SERVICES

A. Operation / Close Out: During the Operation / Project Close-Out Phase, Design-Build Entity and its Designers shall, when requested by Owner, provide all necessary architectural, design and engineering services, for:

1. Refining, adjusting and correcting of any equipment or systems.

2. Start-up, testing and placing in operation all equipment and systems.

3. Completion of punchlist work.

4. Training Owner's staff to operate and maintain all equipment and systems.

5. Assist Owner in developing systems and procedures for control of the operation and maintenance of and record keeping for the Project.

6. Prepare electronic record sets and sets of reproducible record prints or Drawings showing those changes made during the construction process, based on the marked-up prints, Drawings and other data.

7. Together with Owner, visit the Project to observe any apparent defects in the completed construction, correct such deficiencies, and supply information as needed regarding replacement, correction, or diminished value of defective work.

2.04 DESIGN-BUILD ENTITY'S RESPONSIBILITY FOR FINISHED CONSTRUCTION

A. Owner's right to review Design-Build Entity's design and deliverables, including without limitation Design Development Documents, Construction Documents, shop drawings, samples and Submittals, as specified in the Contract Documents, including any review by Bridging Architect or other Owner advisor, shall not relieve Design-Build Entity of its responsibility for a complete design and construction complying with the requirements of the Contract Documents; but rather, such review shall be in furtherance of Owner's monitoring and accepting the design as developed and issued by Design-Build Entity, consistent with these Contract Documents. Design-Build Entity's responsibility to design and construct the Project in conformance with the Contract Documents including, but not limited to, the applicable performance standards and any fully executed change orders, shall be absolute. Such duty may not be altered or diminished by any action other than a signed change order.

B. Auto CAD and Other Electronic Data. Provide AutoCAD 2018 files of all Construction Documents including as-bid, as-built, and all record Drawings, on C.D. Prepare electronic record sets and sets of reproducible record prints or Drawings showing those changes made during the construction process. Electronic data shall conform to Owner requirements for compatibility with Owner equipment and software.

END OF SECTION

SECTION 01 1102

SUMMARY OF WORK – DESIGN-BUILD CONTRACTOR SERVICES

PART 1 - INTRODUCTION

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 DESIGN-BUILD CONTRACTOR ENTITY SERVICES

A. Design-Build Entity shall provide Owner with professional construction and design-build general contractor services in connection with the Project.

B. Services under this Section 01 1102 include:

1. Existing Conditions Review and Verification.
2. Construction Progress Planning.
3. Securing of Necessary Permits and Approvals for Design-Build Entity's Work – Verification and Assistance.
4. Public Relations Activities.
5. Operations and Safety Program.
6. Federal, State and Local Coordination / Processing.
7. Recommendations for Professional Consultants.
8. Subcontractor Procurement Plan.
9. Master Project Schedule.
10. Monthly Project Reports.
11. Recordkeeping Requirements.

C. Services under this Section 01 1102 shall proceed concurrently with other Contract Documents services, including without limitation design services under Section 01 1101 (Summary of Work – Design-Build Design Services). Identifying and numbering of Tasks in this Section shall not control Design-Build Entity in its planning, sequencing or execution of the Work or otherwise relieve Design-Build Entity of its all-inclusive design-build responsibilities or any other responsibilities under Contract Documents, including without limitation requirements relating to Contract Modifications and claims.

1.03 COMPENSATION

A. Amounts paid for services required by this Section 01 1102 shall be paid as otherwise provided in the Contract Documents. To the extent the amounts have been paid prior to execution of the Contract Documents, such amounts shall be credited as payments reducing the Contract Sum.

PART 2 - PROJECT PLANNING TASKS

2.01 TASK #1: EXISTING CONDITIONS REVIEW AND VERIFICATIONS

A. Consistent with the standard of care of an experienced design-build contractor building a similar size and nature facility in the geographic locale of the Project, Design-Build Entity shall conduct a comprehensive review of Project site conditions and contiguous site conditions, sufficient to successfully perform all aspects of the Work, including, but not limited to:

1. Site logistics, site access restrictions or requirements, traffic, noise restrictions, hourly work restrictions, requirements of public and/or private authorities with jurisdiction, and any other restriction or consideration that may affect Design-Build Entity's Work.

2. Existing conditions information provided by Owner including, but not limited to, review and study of all available as-built information, geotechnical reports, engineering studies, previous contracts, measurements, surveys, documents and materials described and / or provided in the series 00 3100 (Available Project Information) Documents.

3. Any other investigations deemed necessary by Design-Build Entity to fully acquaint itself with existing conditions for purposes of its Work.

B. Design-Build Entity shall perform the investigations promptly after contract award and report to Owner in writing, any additional information Design-Build Entity needs, lacks, or would assist Design-Build Entity in assessing existing conditions. Owner and Design-Build Entity shall work collaboratively to secure any further, additional information required by Design-Build Entity, to the extent reasonably available.

C. Design-Build Entity's performance of this Task #1 is intended to supplement, not replace, its pre-Proposal investigations, and Design-Build Entity remains fully responsible for any deficiencies in its pre-Proposal investigations.

2.02 TASK #2: CONSTRUCTION PROGRESS PLANNING

A. For the Owner's planning purposes, Design-Build Entity shall provide Owner with a report on specific requirements to maintain construction progress. Requirements shall specifically include, but are not limited to, the following:

1. Required Owner Coordination for Early Procurement – Approvals, Selections, Planning. Design-Build Entity will advise Owner regarding materials or equipment that require early procurement to maintain the Project schedule, and steps, approvals, reviews or other Owner actions, that Design-Build Entity may require to maintain this part of the schedule. Design-Build Entity will provide Owner with a written report evaluating early procurement requirements and identifying the dates by which decisions must be made.

2. Logistics. Design-Build Entity will advise Owner regarding the effect of site logistics on schedule, specific requirements or requirements to manage such logistics with the expected construction and construction progress, and will make recommendations for improving site or other logistics to reduce the potential for interferences or increased costs. All recommendations must consider functionality, the effect of logistics on the operation of Owner's facilities, and Design-Build Entity's contract commitment to manage and execute the Project in a manner that meets the requirements of the Contract Documents, including but not limited to, non-interference with continuing Owner operations on and adjacent to the Site.

2.03 TASK #3: SECURING OF NECESSARY PERMITS AND APPROVALS FOR DESIGN-BUILD ENTITY'S WORK – VERIFICATION AND ASSISTANCE

A. Federal, State and County Requirements. Design-Build Entity will provide all necessary information, applications, documents and forms, as may be required by City, County, and other regulatory and permitting agencies, necessary to secure the necessary approvals and permits, necessary to perform the Work. Design-Build Entity shall provide Owner with a listing of all information, approvals, and/or consents, required from Owner, to perform this requirement. Design-Build Entity shall provide Owner with such listing significantly in advance of the required information, approvals and/or consents, to permit Owner reasonable time for compliance.

B. Permits. Design-Build Entity shall conduct the necessary research, investigations and inquiry to determine and verify that Owner, Design-Build Entity, and any other Project participants have applied for and secured all building permits, special permits, and approvals necessary for Design-Build Entity to perform its Work and/or for the permanent improvements, financing, permitting, and operation of the Project and each Subproject. This task shall apply to City and County requirements, as well as other federal, state, local, and special district or other regulatory requirements.

C. Fees and Assessments. Design-Build Entity shall verify that each applicant for a permit required for construction, has paid applicable fees and assessments, and filed necessary reports and or materials, and that responsible parties have secured such permits. Design-Build Entity shall assist and coordinate efforts of Owner and other consultants in connection with Design-Build Entity's responsibility for filing documents required for approvals of City / County and other applicable public regulatory authorities having jurisdiction.

D. Utilities. Design-Build Entity shall take primary responsibility to assist, manage and (if necessary) verify that Owner has applied for any applicable utility permits (if such permits must be in Owner's name), and that any such applicable fees and assessments are paid. Design-Build Entity shall take primary responsibility to assist Owner in obtaining approvals and securing such utility permits from public and/or private authorities having jurisdiction over the Project. Design-Build Entity shall coordinate any on-site activities of utility companies, materials and soils testing engineering and regulatory agencies, utility outages or other connections or re-routing of services.

E. Statutory Approvals. Design-Build Entity shall assist Owner in obtaining statutory approvals or local approvals, for example, City and County Fire and Building Departments.

2.04 TASK #4: PUBLIC RELATIONS ACTIVITIES

A. Design-Build Entity shall designate a Design-Build Entity representative to attend, and will assist Owner in, all public relations matters including, but not limited to, preparing Project information and attending internal, permitting, and public meetings as required including site meetings and meetings with Federal, State, County, civic, and other authorities having jurisdiction.

B. A designated Owner representative shall be the point of contact for the entire community during all phases of construction in regards to any complaints, questions, safety issues, noise problems, dust problems, and the like, except for such specific areas Owner's representative delegates to Design-Build Entity.

2.05 TASK #5: OPERATIONS AND SAFETY PROGRAM

A. Design-Build Entity will be responsible for developing and implementing an Operations and Public Safety Program ("Operations and Safety Program"), which shall be a specific written deliverable provided by Design-Build Entity to Owner and that Design-Build Entity shall implement once Owner has completed its review. The Operations and Safety Program shall specifically include, but is not limited to:

1. Project-specific measures for coordination of the Project with on-going Owner operations and other businesses or operations at or contiguous to the Site, to assure that such operations shall continue unimpeded (including without adversely affecting safety) during the Work. These measures include coordination of construction operations including, but not limited to, noise, traffic, vibration, and any other issues that may be foreseeable with such operations.

2. Temporary measures including, but not limited to, covered walkways, barriers and walls, pavement, directional signage, lighting, and ventilation. Design-Build Entity shall provide these temporary measures to maintain the continued, uninterrupted operation of Owner facilities, Owner operations, adjacent businesses and structures, including traffic flow, during the Construction phase of the Work. The first priority for all such temporary measures shall be the continued, uninterrupted operations of the Owner, the safety of the general public, and substantially unimpeded vehicular and pedestrian traffic flow.

3. Coordination of construction, delivery, installation, commissioning, testing and turnover, of products, equipment, and systems, with responsible Owner and/or other authorities with jurisdiction, including the identification of organizational responsibility and authority for decisions, consents or approvals, to ensure performance of such work without delays resulting from lack of required consents.

4. For any Work within an existing facility, a clear identification of the physical boundaries in which all Work is to take place.

5. Design-Build Entity shall be exclusively responsible for determining the requirements and assignment of safety responsibilities included in the Contract Documents.

2.06 TASK #6: FEDERAL, STATE AND LOCAL COORDINATION / PROCESSING

A. Design-Build Entity, in cooperation with Owner, shall have primary responsibility for the coordination and processing of all necessary applications, permits, changes, paperwork, approvals, instruction bulletins, accommodating meetings and inspections, and close-out documents with the City / County and any other applicable public agency.

2.07 TASK #7: RECOMMENDATIONS FOR PROFESSIONAL CONSULTANTS

A. Design-Build Entity shall advise Owner of any need for the any additional, professional services of surveyors, special consultants and testing laboratories, not foreseen at the time of contracting. Design-Build Entity shall then, to the extent such consultants are not covered in Design-Build Entity's scope of work under this Contract, assist the Owner, if required, in selecting and retaining such consultants, and coordinate their services, as and if necessary for the Project or for Design-Build Entity to perform its services.

2.08 TASK #8: SUBCONTRACTOR PROCUREMENT PLANS

A. Design-Build Entity shall develop and submit to Owner a Subcontractor Procurement Plan which is consistent and complies with Subcontractor procurement requirements in Document 00 7253 (General Conditions – Design-Build).

B. See Document 00 7253 (General Conditions – Design-Build) paragraph 4.03 regarding various Subcontractor procurement requirements, including providing Owner with additional versions of Document 00 4330 (Subcontractors List).

PART 3 - SCHEDULING, REPORTING AND RECORD KEEPING

3.01 TASK #9: MASTER PROJECT SCHEDULE

A. By no later than the first payment application, Design-Build Entity will develop a Master Project Schedule, subject to review and acceptance by Owner, which will contain key milestones to be accomplished by the Project participants for design, construction and project management.

B. The Master Project Schedule shall also include:

1. The Master Project Schedule shall meet the requirements of Section 01 3200 (Progress Schedules and Reports), and will reflect the detail and progress of the Project Schedule appropriate to the stage of planning, design, and construction.

2. Preconstruction and construction services under this Section 01 1102, at the top of the schedule.

3. The first level of detail from Subcontractors, Design-Build Entity's design team, inspectors and other parties interfacing with the Project, including necessary reviews, approvals, permitting and authorization milestones.

4. Long lead item procurement.

5. Subcontractor packages and critical construction milestones.

6. Owner review and approval requirements

7. Schedule of Shop Drawings and Sample Submittals, as described in Section 01 3300 (Submittals).

3.02 TASK #10: MONTHLY PROJECT REPORTS

A. Design-Build Entity shall provide Owner with monthly written reports covering the Project and that address the general status, problems, concerns, and progress of the Project and a 90-day look ahead schedule.

B. A progress summary shall be the first page of the Monthly Project Report. The report shall indicate in column format:

1. The original and forecast cost and dates of completion;

2. The original and adjusted contract sums;

3. Pending change order requests and claims; and

4. The original and projected completion dates.

C. The Monthly Project Report shall include construction progress and updates.

1. Construction progress: generally since prior report, and percentage completion. Design-Build Entity shall include a narrative of the work performed and an updated task list and identify areas of concern, actions and approvals needed.

2. Design-Build Entity schedule: work progress against schedule. The report shall clearly identify actual performance with respect to the current approved version of the schedule. The narrative shall include any problems or delays encountered, causes of delays, proposed ways to work around any problems that arise and schedule assessment.

D. Design Status. The Monthly Project Report shall include a section on design status for the Project. The report shall also include a list of any Contract deliverables and identification of areas of concern, actions and approvals needed, and recommendations regarding ongoing design work with respect to value engineering, constructability coordination of design services with other Project items, and any and all design changes affecting appearance, size, function, usage or cost of the Project or any Subproject.

E. Subcontractor Procurement. The Monthly Project Report shall include a section on subcontractor procurement. The narrative shall include progress on and changes to the original Subcontractor Procurement Plan.

F. Design-Build Entity's Safety Program. The Monthly Project Report shall include a section on the Design-Build Entity's Safety Program. The narrative shall include incident reports and statistics and other Design-Build Entity recommended information to demonstrate and promote the effectiveness of its Safety Program.

G. Disputes and claims. The Monthly Project Report shall include a section on disputes and claims. For the Project and each Subproject, the narrative shall include a discussion on disputes, potential claims, and claims made.

H. Look Ahead Task List. The Monthly Report shall include a 90-day look ahead/task listing for Owner planning purposes, of Owner-specific activities, inspections, approvals, tie-ins, connections, consents, decisions, necessary from the Owner to facilitate Design-Build Entity's progress.

I. Daily log (electronic copy only). Design-Build Entity shall keep a daily log containing a record of weather, contractor activities, and subcontractors working on the site, number of workers, work accomplished, problems encountered, impacts on the Work and specific activities, and other relevant data or such additional data as Owner may require. Design-Build Entity shall maintain the log electronically in a format acceptable to Owner, with each data-point maintained separately for separate sorting, charting or study by Owner if necessary. Design-Build Entity shall submit such electronic file monthly, with the Monthly Progress Report.

3.03 TASK #11: RECORDKEEPING REQUIREMENTS

A. Design-Build Entity shall maintain construction records to include, but not limited to, the following documents to be maintained on a current basis and available on site: a record copy of the Contract Documents, drawings, specifications, addenda, change orders, change modifications and other modifications, organized, in good order and marked to record all as-built changes made during construction; shop drawings; product data/material data sheets; samples; submittal; purchases; materials; equipment; inspections; applicable Federal and State and local titles, regulations publications, handbooks or manuals of requirements and codes applicable to the design and construction of the facility; maintenance and operating manuals and instructions; other related documents and revisions which arise out of the Construction Contracts. Design-Build Entity shall maintain records in duplicate, of principal building layout lines, elevations for the bottom of footings, floor levels, and key site elevations (certified by a qualified surveyor or professional engineer, if necessary).

B. Design-Build Entity shall make all such records available to Owner. At the completion of the Project, Design-Build Entity shall deliver all such records to the Owner to have a complete set of record as-built drawings.

C. Design-Build Entity's failure to comply with recordkeeping requirements under this subparagraph entitles Owner to withhold five percent of any Application for Payment until compliance.

END OF DOCUMENT

SECTION 01 2000

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section includes description of requirements and procedures for determining amount of Work performed and for obtaining payment for Work performed.

1.03 REFERENCES

A. California Public Contract Code.

B. Code of Civil Procedures.

C. Government Code.

1.04 COMPOSITION AND SCOPE OF CONTRACT SUM

A. Scope of Contract Sum:

1. The Contract Sum for performance of the Work under the Contract Documents shall include full compensation for all Work required under the Contract Documents, including without limitation, all design, architecture, professional services, labor, materials, taxes, transport, handling, storage, supervision, administration, and all other items necessary for the satisfactory completion of the Work, whether or not expressly specified or indicated, incidental work and unexpected expenses, and all terms, conditions, requirements and limitations set forth in the Contract Documents.

2. Contract Sum may be expressed as lump sum, GMP, combination thereof. The Contract Sum, whether lump sum, or otherwise, shall be deemed to include all costs necessary to complete required Work, including Design-Build Entity overhead and profit, all costs (if any) for loss or damage arising from nature of Work or prosecution of the Work, and from action of elements.

3. Unless Contract Documents expressly provide otherwise, the Contract Sum shall be deemed to include:

a. Any and all costs arising from any unforeseen difficulties which may be encountered during, and all risks of any description connected with, prosecution of Work or any Work item until acceptance by Owner;

b. All expenses incurred due to suspension, or discontinuance of Work or any Work item as provided in Contract Documents;

c. Escalation to allow for cost increases between time of Contract Award and completion of Work or any Work item.

B. Lump Sum Items:

1. When estimated quantity for specific portion of Work is not indicated and / or Work is designated as lump sum, payment will be on a lump sum basis for Work satisfactorily completed in accordance with Contract Documents.

2. Payment for lump sum Work, or items of Work subject to a lump sum (e.g. without limitation, change order work), shall be made on the basis of satisfactory completion of such Work or work item, earned in progressive stages in accordance with the Contract Documents, up to but not exceeding the Design-Build Entity's percentage completion of the Work or item.

3. Lump sum items shall be paid based upon the approved Schedule of Values, which shall be used to measure progressive payments based upon satisfactory progress towards completion of the item.

1.05 PAYMENT PROCEDURES

A. Work Breakdown Structure/Schedule of Values:

1. Within ten Days after Document 00 5100 (Notice of Conditional Award) becomes unconditional, and prior to the Design-Build Entity's first Application for Payment, Design-Build Entity will participate in a meeting with the Owner to establish how the WBS and Schedule of Values must be sequenced and costs distributed to satisfy State Grant accounting requirements associated with the State bond funding for the project.

2. Within ten days following the WBS/Schedule of Values meeting, Design-Build Entity shall submit a detailed breakdown of its Proposal by scheduled Work items and/or activities, including coordination responsibilities and Project Record Documents responsibilities. Where more than one Subcontractor comprises the work of a Work item or activity, the Schedule of Values shall show a separate line item for each subcontract. Design-Build Entity shall furnish such breakdown of the total Contract Sum by assigning dollar values (cost estimates) to each applicable Progress Schedule network activity, which cumulative sum equals the total Contract Sum. This breakdown may be referred to as the Schedule of Values, Work Breakdown Structure or both.

3. Design-Build Entity's overhead, profit, insurance, cost of bonds (except to the extent expressly identified in a Contract item) and / or other financing, as well as "general conditions costs," (e.g., Site cleanup and maintenance, temporary roads and access, off-Site access roads, temporary power and lighting, security, and the like), shall be prorated through all activities so that the sum of all the Schedule of Values line items equals Design-Build Entity's total Contract Sum, record documents and quality assurance control shall be separate line items.

4. Owner will review the breakdown in conjunction with the Progress Schedule to ensure that the dollar amounts of this Schedule of Values are, in fact, reasonable cost allocations for the Work items listed. Upon favorable review by Owner, Owner will accept this Schedule of Values for use. Owner shall be the sole judge of fair market cost allocations.

5. Owner will reject any attempt to increase the cost of early activities, i.e., "front loading," resulting in a complete reallocation of moneys until such "front loading" is corrected. Repeated attempts at "front loading" may result in suspension or termination of the Work for default, or refusal to process progress payments until such time as the Schedule of Values is acceptable to Owner.

B. Design-Build Entity's Requests for Progress Payments:

1. If requested by Design-Build Entity, progress payments will be made monthly, under the following conditions:

2. On or before the 25th Day of each month, Design-Build Entity shall submit to Owner five copies of an Application for Payment for the cost of the Work put in place during the period from the last Day of the previous month to the end of the current month, along with one copy of an updated Progress Schedule. Such Applications for Payment shall be for the expected total value of activities completed or partially completed, based upon Schedule of Values prices of all labor and materials incorporated in the Work up until midnight of the last Day of that one month period, less the aggregate of previous payments. Accumulated retainage shall be shown as separate item in payment summary. Owner and Design-Build Entity will reconcile any differences in the field, based on the reconciled monthly report sheets. If Design-Build Entity is late submitting its Application for Payment, that Application may be processed at any time during the succeeding one-month period, resulting in processing of Design-Build Entity's Application for Payment being delayed for more than a Day for Day basis.

3. Except as otherwise provided in a labor compliance program applicable to the Work (if any) or as otherwise required by Owner, concurrently with each Application for Payment, Design-Build Entity shall submit to the Owner the Design-Build Entity's and its Subcontractors' certified payroll records required to be maintained pursuant to Labor Code Section 1776 for all labor performed during pay periods ending during the period covered by the Application for Payment.

4. No progress payment will be processed prior to Owner receiving all requested, acceptable schedule update information and certified payrolls, and in Owner's sole and absolute discretion, Owner may deny the entire Application for Payment for noncompliance.

5. Each Application for Payment shall list each Change Order and Construction Change Directive ("CCD") executed prior to date of submission, including the Change Order / CCD Number, and a description of the Work activities, consistent with the descriptions of original Work activities. Design-Build Entity shall submit a monthly Change Order / CCD status log to Owner.

6. If Owner requires substantiating data, Design-Build Entity shall submit information requested by Owner, with cover letter identifying Project, Application for Payment number and date, and detailed list of enclosures. Design-Build Entity shall submit one copy of substantiating data and cover letter for each copy of Application for Payment submitted.

7. If Design-Build Entity fails or refuses to participate in monthly Work reconciliations or other construction progress evaluation with Owner, Design-Build Entity shall not receive current payment until Design-Build Entity has participated fully in providing construction progress information and schedule update information to Owner.

C. Owner's Review of Progress Payment Applications:

1. Owner will review Design-Build Entity's Application for Payment following receipt and during the Progress Schedule and Billing Meeting. If adjustments need to be made to percent of completion of each activity, Owner will make appropriate notations and return to Design-Build Entity. Design-Build Entity shall revise and resubmit. All parties shall update percentage of completion values in the same manner, i.e., express value of an accumulated percentage of completion to date.

2. If Owner determines that portions of the Application for Payment are not proper or not due under the Contract Documents, then Owner may approve the other portions of the Application for Payment, and in the case of disputed items or Defective Work not remedied, may withhold up to 150 percent of the disputed amount from the progress payment.

3. Pursuant to California Public Contract Code §20104.50, if Owner fails to make any progress payment within 30 Days after receipt of an undisputed and properly submitted Application for Payment from Design-Build Entity, Owner shall pay interest to the Design-Build Entity equivalent to the legal rates set forth in subdivision (a) of Section 685.010 of the California Code of Civil Procedure. The 30-Day period shall be reduced by the number of Days by which Owner exceeds the seven-Day return requirement set forth herein.

4. As soon as practicable after approval of each Application for Payment for

progress payments, Owner will pay to Design-Build Entity in manner provided by law, an amount equal to 95 percent of the amounts otherwise due as provided in the Contract Documents, or a lesser amount if so provided in Contract Documents, provided that payments may at any time be withheld if, in judgment of Owner, Work is not proceeding in accordance with Contract, or Design-Build Entity is not complying with requirements of Contract, or to comply with stop notices or to offset liquidated damages accruing or expected. In Owner's sole discretion, if Design-Build Entity has failed to comply with either its Progress Schedule update or project record documents requirements, Owner may retain an additional 5% of any earned amounts until such requirements are satisfied.

5. Before any progress payment or final payment is due or made, Design-Build Entity shall submit satisfactory evidence that Design-Build Entity is not delinquent in payments to employees, Subcontractors, suppliers, or creditors for labor and materials incorporated into Work. This specifically includes, without limitation, conditional lien release forms for the current progress payment and unconditional release forms for past progress payments. This also includes copies of certified payroll from Design-Build Entity and subcontractors for the current payment period.

D. Payment for Material and Equipment Not Yet Incorporated into the Work:

1. No payment shall be made for materials or equipment not yet incorporated into the Work, except as specified elsewhere in the Contract Documents or as may be agreed to by Owner in its sole discretion. Where Design-Build Entity requests payment on the basis of materials and equipment not incorporated in the Work, Design-Build Entity must satisfy the following conditions:

2. The materials and / or equipment shall be delivered and suitably stored at the Site or at another local location agreed to in writing, for example, a mutually acceptable bonded and insured warehouse.

3. Full title to the materials and / or equipment shall vest in Owner at the time of delivery to the Site, warehouse or other storage location. Obtain a negotiable warehouse receipt, endorsed over to Owner for materials and / or equipment stored in an off-site warehouse. No payment will be made until such endorsed receipts are delivered to Owner.

4. Stockpiled materials and / or equipment shall be available for Owner inspection, but Owner shall have no obligation to inspect them and its inspection or failure to inspect shall not relieve Design-Build Entity of any obligations under the Contract Documents. Materials and / or equipment shall be segregated and labeled or tagged to identify these specific Contract Documents.

5. After delivery of materials and/or equipment, if any inherent or acquired

defects are discovered, defective materials and / or equipment shall be removed and replaced with suitable materials and / or equipment at Design-Build Entity's expense.

6. At Design-Build Entity's expense, insure the materials and / or equipment against theft, fire, flood, vandalism, and malicious mischief, as well as any other coverages required under the Contract Documents.

7. Design-Build Entity's Application for Payment shall be accompanied by a bill of sale, invoice or other documentation warranting that Owner has received the materials and equipment free and clear of all liens and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect Owner interest therein, all of which must be satisfactory to Owner. This documentation shall include, but not be limited to, conditional releases of mechanics' liens and stop notices from all those providing materials and equipment as to which the Application for Payment relates, as well as unconditional releases of the same from the same as to the previous Application for Payment for which they have not already been provided. Amounts previously paid for materials and equipment prior to incorporation into the Work shall be deducted from amounts otherwise due Design-Build Entity as they are incorporated.

1.06 FINAL PAYMENT

A. Final Payment:

1. As soon as practicable after all required Work is completed in accordance with Contract Documents, including punchlist, testing, record documents and Design-Build Entity maintenance after Final Acceptance, Design-Build Entity shall submit its Application for Final Payment.

2. Provided Design-Build Entity has met all conditions required for Final payment, Owner will pay to Design-Build Entity, in manner provided by law, unpaid balance of Contract Sum of Work (including, without limitation, retentions), or whole Contract Sum of Work if no progress payment has been made, determined in accordance with terms of Contract Documents, less sums as may be lawfully retained under any provisions of Contract Documents or by law.

B. Final Accounting:

1. Prior progress payments and change orders shall be subject to audit and correction in the final payment.

2. Design-Build Entity and each assignee under an assignment in effect at time of final payment shall execute and deliver at time of final payment, and as a condition precedent to final payment, Document 00 6530 (Agreement and Release of Claims).

1.07 SUBSTITUTION OF SECURITIES

A. Public Contract Code Section 22300. In accordance with the provisions of Public Contract Code Section 22300, substitution of securities for any moneys withheld under Contract Documents to ensure performance is permitted under following conditions:

1. At request and expense of Design-Build Entity, securities listed in Section 16430 of the Government Code, bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by Design-Build Entity and Owner which are equivalent to the amount withheld under retention provisions of Contract shall be deposited with Controller or with a state or federally chartered bank in California, as the escrow agent, who shall then pay such moneys to Design-Build Entity. Upon satisfactory completion of Contract, securities shall be returned to Design-Build Entity.

2. Alternatively, Design-Build Entity may request and Owner shall make payment of retentions earned directly to the escrow agent at the expense of Design-Build Entity. At the expense of Design-Build Entity, Design-Build Entity may direct the investment of the payments into securities and receive the interest earned on the investments upon the same terms provided for securities deposited by Design-Build Entity. Upon satisfactory completion of the work of the Contract Documents, Design-Build Entity shall receive from escrow agent all securities, interest, and payments received by the escrow agent from Owner. Design-Build Entity shall then pay to each Subcontractor, not later than 20 Days after receipt of the payment, the respective amount of interest earned, net of costs attributed to retention withheld from each Subcontractor, on the amount of retention withheld to insure the performance of Design-Build Entity.

3. Design-Build Entity shall be beneficial owner of securities substituted for moneys withheld and shall receive any interest thereon.

4. Design-Build Entity may enter into an escrow agreement, form included in Contract Documents, as authorized under Public Contract Code Section 22300, specifying amount of securities to be deposited, terms and conditions of conversion to cash in case of default of Design-Build Entity, and termination of escrow upon completion of Contract Documents.

5. Public Contract Code Section 22300, in effect upon Design-Build Entity's execution of Document 00 5200 (Agreement), is hereby incorporated in full by this reference and shall supersede anything inconsistent therewith.

1.08 BASIS AND EFFECT OF PAYMENT

A. Payment will be made by Owner, based on Owner review of Design-Build Entity prepared plans and specifications, observations at the Site and the data comprising the Application for Payment. Payment will not be a representation that Owner has:

1. Made exhaustive or continuous on-Site inspections to check the quality or quantity of Work;

2. Thoroughly checked Design-Build Entity prepared Design Development and / or Contract Documents for compliance with Bridging Documents, code and other agency requirements;

3. Reviewed construction means, methods, techniques, sequences, or procedures;

4. Reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by Owner to substantiate Design-Build Entity's right to payment; or

5. Made examination to ascertain how or for what purpose Design-Build Entity has used money previously paid on account of the Contract Sum.

B. Owner does not expressly, or by implication, agree, warrant, or represent in any manner, that actual amount of Work will correspond with amount shown or estimated and reserves right to increase or decrease amount of any class or portion of Work, to leave out entire Work Item or Items, or to add work not originally included in Design-Build Entity's Proposal or Contract Documents, when in its judgment such change is in best interest of Owner. No change in Work shall be considered a waiver of any other condition of Contract Documents. No claim shall be made for anticipated profit, for loss of profit, for damages, or for extra payment whatever, except as otherwise expressly provided for in Contract Documents, because of any differences between the amount of work actually done and estimated amount as set forth herein, or for elimination of Work Items.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 2100

ALLOWANCES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section includes Allowances including:

1. Owner's Contingency Allowance.

1.03 RELATED SECTIONS

A. Section 00 5200 – Agreement.

B. Section 01 1100 – Summary of Work (Design-Build).

C. Section 01 2000 – Measurement and Payment.

D. Section 01 3300 – Submittals.

1.04 OWNER'S CONTINGENCY ALLOWNACE

A. Owner's Contingency Allowance is included in the Contract Sum and Controlled by Owner.

B. Design-Build Entity's Costs for Products, Delivery, Installation, Labor, Insurance, Payroll, Taxes, Bonding, Differing Site Conditions And Equipment Rental Will Be Included In Change Orders Authorizing Expenditure Of Funds From This Allowance.

C. Funds Will Be Drawn from Allowance Only With Owner's Approval Evidenced By A Change Order.

D. At Contract Closeout, Funds Remaining In Allowance Will Be Credited To Owner By Change Order.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 2600

MODIFICATION PROCEDURES AND PRICING OF CHANGED WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section includes requirements that supplement the paragraphs of Document 00 7253 (General Conditions).

B. Requirements for Changes affecting State Bond funding.

C. Description of procedures for modifying the Contract Documents and determining costs for changes in contract amounts.

1.03 PROCEDURES FOR DESIGN-BUILD-ENTITY INITIATED CHANGE ORDER

A. Design-Build Entity-Initiated Change Proposal Request (CPR) and Procedures**:**

1. Design-Build Entity may initiate changes by submitting a Change Proposal Request (“CPR”).

2. Whenever Design-Build Entity elects or is entitled to submit a CPR, Design-Build Entity shall prepare and submit to Owner for consideration a CPR using the form included in this Project Manual. All CPRs must contain a complete breakdown of costs of credits, deducts and extras; itemizing materials, labor, taxes, Markup and any requested changes to Contract Time. All Subcontractor Work shall be so indicated. Individual entries on the CPR form shall include applicable Schedule of Values code, with all amounts determined as provided herein. After receipt of a CPR with a detailed breakdown, Owner will act promptly thereon.

3. If Owner accepts a CPR, Owner will prepare a Change Order for Owner and Design-Build Entity signatures.

4. If CPR is not acceptable to Owner because it does not agree with Design-Build Entity’s proposed cost and / or time, Owner will provide comments thereto. Design-Build Entity will then, within seven (7) Days (except as otherwise provided herein), submit a revised CPR.

5. When necessity to proceed with a change does not allow Owner sufficient time to conduct a proper check of a CPR (or revised CPR), Owner may issue a Change Directive (CD) as provided below.

B. Design-Build Entity-Initiated Request for Information (RFI) Procedures, Requirements and Limitations:

1. Design-Build Entity may submit RFI's for clarifications in Owner-prepared Contract Documents, which may result in the Design-Build Entity submitting a CPR.

2. Whenever Design-Build Entity requires information regarding the Project or Owner-prepared Contract Documents, or receives a request for such information from a Subcontractor, Design-Build Entity may prepare and deliver an RFI to Owner. Design-Build Entity shall use RFI format provided on approval by Owner. Design-Build Entity shall not issue an RFI to Owner solely to clarify Design-Build Entity-prepared Construction Documents. Design-Build Entity must submit time critical RFIs at least 30 days before scheduled start date of the affected Work activity. Design-Build Entity shall reference each RFI to an activity of Progress Schedule and shall note time criticality of the RFI, indicating time within which a response is required. Design-Build Entity's failure to reference RFI to an activity on the Progress Schedule and note time criticality on the RFI shall constitute Design-Build Entity's waiver of any claim for time delay or interruption to the Work resulting from any delay in responding to the RFI.

3. Design-Build Entity shall be responsible for its costs to implement and administer RFIs throughout the Contract duration. Regardless of the number of RFIs submitted, Design-Build Entity shall not be entitled to additional compensation for the effort required to submit the RFIs. Design-Build Entity shall be responsible for Owner's administrative costs for answering RFIs where the answer could reasonably be found by reviewing the Contract Documents, as determined by Owner; at Owner discretion, such costs may be deducted from progress payments or final payment.

4. Owner will respond within ten (10) days from receipt of RFI with a written response to Design-Build Entity. Design-Build Entity shall distribute response to all appropriate Subcontractors.

5. If Design-Build Entity is satisfied with the response and does not request a change in Contract Sum or Contract Time, then the response shall be executed without a change.

6. If Design-Build Entity believes the response is incomplete, Design-Build Entity shall issue another RFI (with the same RFI number with the letter "A" indicating it is a follow-up RFI) to Owner clarifying original RFI. Additionally, Owner may return RFI requesting additional information should original RFI be inadequate in describing condition.

C. Time Requirements:

1. If Design-Build Entity believes that an Owner response to an RFI, submittal or other Owner direction, results in change in Contract Sum or Contract Time, Design-Build Entity shall notify Owner with the issuance of a preliminary CPR within ten Days after receiving Owner's response or direction, and in no event after starting the disputed work or later than the time allowed under Article 12 of Document 00 7253 (General Conditions). If Design-Build Entity also requests a time extension, or has issued a notice of delay or otherwise requests a time extension with a CPR, then Design-Build Entity shall submit the Time Impact Evaluation (TIE) required by Section 01 3200 (Progress Schedules and Reports) concurrently with the CPR and in no event later than ten Days after providing the notice of delay.

2. If Design-Build Entity requires more time to accurately identify the required changes to the Contract Sum or Contract Time, Design-Build Entity may submit an updated and final CPR and TIE within 14 days of submitting the preliminary CPR.

3. If Owner agrees with Design-Build Entity's CPR and / or TIE, then Owner will prepare a Change Order for Owner and Design-Build Entity signatures. If Owner disagrees with Design-Build Entity, then Design-Build Entity may give notice of potential claim as provided in Article 12 of Document 00 7253 (General Conditions), and proceed thereunder.

4. Design-Build Entity must submit CPRs, notices of potential claim or Claims within the required time periods. Any failure to do so waives Design-Build Entity's right to submit a CPR or file a Claim.

D. Cost Estimate Information:

1. Design-Build Entity and subcontractors shall, upon Owner's request, permit inspection of the original unaltered cost estimates, subcontract agreements, purchase orders relating to the change, and documents substantiating all costs associated with its CPR or Claims arising from changes in the Work.

1.04 PROCEDURES FOR OWNER INITIATED CHANGE ORDERS

A. Owner-Initiated Change Directives (CD):

1. Owner may, by Change Directive ("CD") or initially by Instruction Bulletin or by following the procedures for disputed work herein, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, with or without adjustment to Contract Sum or Contract Time.

2. If at any time Owner believes in good faith that a timely Change Order will not be agreed upon using the foregoing procedures, or at any other time, Owner may issue a CD with its recommended cost and/or time adjustment (if any). Upon receipt of CD, Design-Build Entity shall promptly proceed with the change of Work involved and respond to Owner within ten (10) Days.

3. Design-Build Entity's response must be any one of following:

   a. Return CD signed, thereby accepting Owner response, including adjustment to time and cost (if any).

   b. Submit a (revised if applicable) Cost Proposal with supporting documentation (if applicable, reference original Cost Proposal number followed by letter A, B, etc. for each revision), if Owner so requests.

   c. Give notice of intent to submit a claim as described in Article 12 of Document 00 7253 (General Conditions), and submit its claim as provided therein.

4. If CPR or the CD provides for an adjustment to any Contract Sum, the adjustment shall be based on one of the following methods:

   a. Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation.

   b. Design-Build Entity to proceed on cost reimbursable (force account) basis while negotiating towards a firm price.

   c. Cost to be determined in a manner agreed.

5. Change Directive signed by Design-Build Entity indicates the agreement of Design-Build Entity therewith, including adjustment in Contract Sum or the method for determining them. Such agreement shall be effective immediately and shall be finalized as a Change Order. Where Owner authorizes CD work on a time and materials basis up to a maximum amount, then Design-Build Entity shall promptly advise Owner upon reaching 75% of such maximum amount, otherwise Design-Build Entity shall accept fully the risk of completing the CD work without exceeding such maximum amount.

6. If Design-Build Entity does not respond promptly or disagrees with the method for adjustment (or non-adjustment) in the Contract Sum, the method and the adjustment shall be determined by Owner on the basis of the Contract Documents and the reasonable expenditures and savings of those performing the Work attributable to the change. If the parties still do not agree on the proper adjustment due to a Change Directive, Design-Build Entity may file a Claim per Article 12 of Document 00 7253 (General Conditions) and / or Owner may direct the changed work through a

unilateral change order. Design-Build Entity shall keep and present an itemized accounting in a manner consistent with the SOV, together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this paragraph shall be limited to those provided herein.

7. Pending final determination of cost to Owner, Design-Build Entity may include amounts not in dispute in its Applications for Payment. The amount of credit to be allowed by Design-Build Entity to Owner for a deletion or change which results in a net decrease in the Contract Sum shall be actual net cost as confirmed by Owner. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for Markup shall be figured on the basis of net increase, if any, with respect to that change.

B. Owner-Initiated Change Order (CO) or Request for Proposal (RFP):

1. Owner may initiate changes in the Work or Contract Time by issuing a Request for Proposal ("RFP") or Change Order ("CO") to Design-Build Entity.

2. Owner may issue an RFP to Design-Build Entity. Any RFP will detail all proposed changes in the Work and request a quotation of changes in Contract Sum and Contract Time from Design-Build Entity.

3. In response to an RFP, Design-Build Entity shall furnish a Change Proposal Request (CPR) within twenty-one (21) Business Days of Owner's RFP. Upon approval of CPR, Owner may issue a Change Directive directing Design-Build Entity to proceed with extra Work.

4. If the parties agree on price and time for the work, the Owner will issue a Contact Change Order. If the parties do not agree on the price or time for a CPR, Owner may either issue a CD or decide the issue per Article 12 of Document 00 7253 (General Conditions). Design-Build Entity shall perform the changed Work notwithstanding any claims or disagreements of any nature.

1.05 PROCEDURES THAT APPLY TO DESIGN-BUILD-ENTITY AND OWNER-INITIATED CHANGE ORDERS

A. Adjustment of Schedules to Reflect Change Orders or CDs:

1. Design-Build Entity shall revise Schedule of Values and Application for Payment forms to record each authorized Change Order or CD as a separate line item and adjust the Contract Sum as shown thereon prior to the next monthly pay period.

2. Design-Build Entity shall revise the Progress Schedules prior to the next monthly pay period, to reflect CO or CD.

3. Design-Build Entity shall enter changes in Project Record Documents prior to the next monthly pay period.

B. Required Documentation for Adjustments to Contract Amounts:

1. For all changes and cost adjustments requested, Design-Build Entity shall provide documentation of change in Contract Amounts asserted, with sufficient data to allow evaluation of the proposal.

2. In all requests for compensation, cost proposals, estimates, claims and any other calculation of costs made under the Contract Documents, Design-Build Entity shall breakout and quantify costs of labor, equipment and materials identified herein, for Design-Build Entity and subcontractors of any tier.

3. Design-Build Entity shall, on request, provide additional data to support computations for:

a. Quantities of products, materials, labor and equipment.

b. Taxes, insurance, and bonds.

c. Justification for any change in Contract Time and new Progress Schedule showing revision due, if any.

d. Credit for deletions from Contract, similarly documented.

4. Design-Build Entity shall support each claim or computation for additional cost, with additional information including:

a. Origin and date of claim or request for additional compensation.

b. Dates and times Work was performed and by whom.

c. Time records and wage rates paid.

d. Invoices and receipts for products, materials, equipment and subcontracts, similarly documented.

e. Credit for deletions from Contract, similarly documented.

C. Responses and Disputes:

1. For all responses for which the Contract Documents do not provide a specific time period, recipients shall respond within a reasonable time.

2. For all disputes arising from the procedures herein, Design-Build Entity shall follow Article 12 of Document 00 7253 (General Conditions).

PART 2 - COST DETERMINATION FOR CHANGES IN CONTRACT AMOUNTS

2.01 COST DETERMINATION FOR CHANGES IN CONTRACT AMOUNTS

A. Calculation of Total Cost of Extra Work:

1. Total cost of changed Work, extra Work or of Work omitted shall be the sum of three components defined immediately below as:

   a. Component 1 (Direct Cost(s));

   b. Component 2 (Markup); and,

   c. Component 3 (bonds, insurance, taxes).

2. Component 1: Direct Cost(s) of labor, equipment and materials, is calculated based upon actually incurred (or omitted) labor costs, material costs and equipment rental costs, as defined herein;

3. Component 2: Markup on such actually incurred Direct Costs, is applied in the percentages identified below; and

4. Component 3: Actual additional costs for any additionally required insurance, bonds, and / or taxes, defined herein, is calculated without Markup.

2.02 MEASUREMENT OF DIRECT COST OF CONSTRUCTION (COST COMPONENT 1)

A. Composition of Component 1 (Direct Cost of Construction):

1. Component 1 has four subcomponents, also referred to as “LEMS”:

   a. Labor and Professional Services (Component 1A).

   b. Equipment (Component 1B).

   c. Materials (Component 1C).

   d. Subcontractors (Component 1D).

B. Measurement of Cost of Labor and Professional Services (Component 1A):

1. Cost of Labor shall be calculated as: Cost of labor for workers (including forepersons when authorized by Owner) used in actual and direct performance of the subject work, whether employer is Design-Build Entity, Subcontractor or other forces, in the sum of the following:

   a. Actual Wages: Actual wages paid shall include any employer payments to or on behalf of workers for health and welfare, pension, vacation, and similar purposes.

b. Labor surcharge: Payments imposed by local, county, state, and federal laws and ordinances, and other payments made to, or on behalf of, workers, other than actual wages as defined, such as worker's compensation insurance. Such labor surcharge shall not exceed generally accepted standards in the State for labor rates in effect on date upon which extra Work is accomplished.

c. Cost of labor shall include no other costs, fees or charges.

2. Labor cost for operators of equipment owned and operated by Design-Build Entity or any Subcontractor, shall be no more than rates of such labor established by collective bargaining agreements for type of worker and location of Work, whether or not owner-operator (i.e., Design-Build Entity or Subcontractor) is actually covered by such an agreement.

3. Cost of labor shall be recorded and documented in certified payroll records, maintained in the form customary and/or required in the State, delivered to Owner weekly.

4. Cost of professional services shall be at agreed rates for licensed engineers, architects, established in Design-Build Entity's Proposal.

C. Measurement of Cost of Equipment (Component 1B):

1. Measurement of Component 1B (Cost of Equipment). Cost of Equipment shall be calculated as: Cost of Equipment used in actual and direct performance of the subject work, whether by Design-Build Entity, Subcontractor or other forces. Cost of Equipment shall be calculated as herein described.

2. For rented equipment, cost will be based on actual rental invoices, appropriate for the use and duration of the work. Equipment used on extra Work shall be of proper size and type. If, however, equipment of unwarranted size or type and cost is used, cost of use of equipment shall be calculated at rental rate for equipment of proper size and type, as determined by Owner.

3. Equipment rental cost for Design-Build Entity or Subcontractor-owned equipment, shall be determined by reference to, and not in excess of, the generally accepted standards in the State for equipment rental rates in effect on date upon which extra Work is accomplished. If there is no applicable rate for an item of equipment, then payment shall be made for Design-Build Entity- or Subcontractor-owned equipment at rental rate listed in the most recent edition of the CalTrans Standard Schedules and Specifications, and absent a rental rate therein, then the Association of Equipment Distributors (AED) book.

4. In all cases, rental rates paid shall be deemed to cover cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals.

5. Unless otherwise specified, manufacturer's ratings, and manufacturer-approved modifications, shall be used to classify equipment for determination of applicable rental rates. Individual pieces of equipment or tools not listed in said publication and having a replacement value of $100 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefore as payment is included in payment for labor. Rental time will not be allowed while equipment is inoperative due to breakdowns.

6. For equipment on Site, rental time to be paid for equipment shall be time equipment is in operation on extra Work being performed or on standby as approved by Owner. The following shall be used in computing rental time of equipment:

    a. When hourly rates are listed, less than 30 minutes of operation shall be considered to be 1/2 hour of operation.

    b. When daily rates are listed, less than four hours of operation shall be considered to be 1/2 day of operation.

    c. Rates shall correspond to actual rates paid by Design-Build Entity, i.e., if Design-Build Entity pays lower weekly or monthly rates, then same shall be charged to Owner.

7. For equipment that must be brought to Site to be used exclusively on extra Work, cost of transporting equipment to Site and its return to its original location shall be determined as follows:

    a. Owner will pay for costs of loading and unloading equipment.

    b. Cost of transporting equipment in low bed trailers shall not exceed hourly rates charged by established haulers.

    c. Cost of transporting equipment shall not exceed applicable minimum established rates of California Public Utilities Commission or appropriate State Dept. of Transportation.

    d. Owner will not make any payment for transporting and loading and unloading equipment if equipment is used on Work in any other way than upon extra Work.

    e. Rental period may begin at time equipment is unloaded at Site of extra Work and terminate at end of the performance of the extra Work or Day on which Owner directs Design-Build Entity to discontinue use of equipment, whichever first occurs. Excluding

Saturdays, Sundays, and Owner legal holidays, unless equipment is used to perform extra Work on such Days, rental time to be paid per Day shall be four hours for zero hours of operation, six hours for four hours of operation and eight hours for eight hours of operation, time being prorated between these parameters. Hours to be paid for equipment that is operated less than eight hours due to breakdowns, shall not exceed eight less number of hours equipment is inoperative due to breakdowns.

8. Employee vehicles are not part of Component 1A, rather, are included within Component 2 (Markup).

9. Equipment costs shall include no other costs, fees or charges.

D. Measurement of Cost of Material (Component 1C):

1. Cost of Material shall be calculated as herein described. Cost of such materials will be cost to purchaser (Design-Build Entity, Subcontractor or other forces) from supplier thereof, except as the following are applicable:

2. If cash or trade discount by actual supplier is offered or available to purchaser, it shall be credited to Owner notwithstanding fact that such discount may not have been taken.

3. For materials salvaged upon completion of Work, salvage value of materials shall be deducted from cost, less discounts, of materials.

4. If cost of a material is, in opinion of Owner, excessive, then cost of material shall be deemed to be lowest current wholesale price at which material is available in quantities concerned delivered to Site, less any discounts as provided in this Paragraph.

5. Material costs shall include no other costs, fees or charges.

E. Measurement of Cost of Subcontractors (Component 1D):

1. Where reimbursed or calculated per the terms of the Contract Documents, change order or Change Directive, cost of Subcontractors shall be calculated as amounts earned by Subcontractors procured in compliance with the Contract Documents and approved by the Owner, provided such subcontractor earned amounts meet the following requirements:

a. Such amounts are earned under the terms of the Subcontracts and the Work complies with the terms of the Contract Documents;

b. Such amounts are properly requested, documented and permitted under the terms of the subcontract(s) and the Contract Documents.

c. Total cost to Owner of Direct Costs of Construction (labor, equipment, materials), Markup, and costs of bonds, insurance and taxes, conform to contract limitations (i.e., totals paid by Owner do not exceed the 20% Markup limitation.).

2.03 MEASUREMENT AND PAYMENT OF MARK UPS (COST COMPONENT 2)

A. Markup Percentages for Changed Work (Component 2):

1. Markup on Direct Cost of labor and materials for extra Work shall be 15%. Markup on Direct Cost of equipment for extra Work shall be 15%.

2. When extra Work is performed by Subcontractors, regardless of the number of tiers, total Markup on “Component 1” Direct Costs shall not exceed 20%. Design-Build Entity and its Subcontractors shall divide the 20% as they may agree.

3. Under no circumstances shall the total Markup on any extra Work exceed twenty (20) percent, stated as a percent of the Direct Cost of labor, equipment and materials. This limitation shall apply regardless of the actual number of subcontract tiers.

4. On proposals covering both increases and decreases in Contract Sum, Markup shall be allowed on the net increase only as determined above. When the net difference is a deletion, no percentage for Markup shall be allowed, but rather an appropriate percentage deduction shall be issued in the amount of the net difference.

B. Measurement and Payment of Mark Up (Component 2):

1. Mark Up (Component 2) provides complete compensation to Design-Build Entity for:

a. All Design-Build Entity profit;

b. All Design-Build Entity home-office overhead;

c. All Design-Build Entity assumption of risk assigned to Design-Build Entity under the Contract Documents;

d. Subject to the qualifications below regarding self-performed work, all General Conditions and General Requirements.

2. Profit. Compensation for profit included within Component 2 (Mark Up), includes without limitation: Fees of all types, nature and description; and Profit and margins of all types, nature and description.

3. Home Office Expenses. Compensation for home office expenses included within Component 2 (Mark Up), includes without limitation: Salaries and other compensation of any type of Design-Build Entity’s personnel

(management, administrative and clerical), and all direct and indirect operating, travel, payroll, safety, storage, quality control, maintenance and overhead costs of any nature whatsoever, incurred by Design-Build Entity at any location other than the Project specific site office, including without limitation, Design-Build Entity's principal or branch offices; insurance premiums other than those for Project specific insurance directed by the Owner in a change order; all hardware, software, supplies and support personnel necessary or convenient for Design-Build Entity's capture, documentation and maintenance of its costs and cost accounting data and cost accounting and control systems and work progress reporting.

4. Assumption of Risk. Compensation for Design-Build Entity's assumption of risk under the Contract Documents, included within Component 2 (Mark Up), includes without limitation loss, cost, damage, expense or liability resulting directly or indirectly from any of the following causes ("unallowable costs"), for Design-Build Entity and subcontractors of any tier: noncompliance with the Contract Documents, fault or negligence, defective or non-conforming Work, by Design-Build Entity or any Subcontractor or Vendor of any tier or anyone directly or indirectly employed by any of them, or for whose acts or omissions any of them are responsible or liable at law or under the Contract Documents; cost overruns of any type; costs in excess of any lump sum, not to exceed amount or GMP; costs resulting from bid or "buy out" errors, unallocated scope, or incomplete transfer of scope or contract terms to subcontractors; any costs incurred by Design-Build Entity relating to a Change in the Work without a Change Order or Change Directive in accordance with the Contract Documents; costs for work or materials for which no price is fixed in the Contract Documents, unless it is expressly specified that such work or material is to be paid for as extra work.

5. General Conditions and Division 01 General Requirements. Compensation for Design-Build Entity's General Conditions and General Requirements Costs included within Component 2 (Mark Up), includes compensation to Design-Build Entity for: Design-Build Entity's direct costs, without overhead or profit, for salaries and related forms of compensation and employer's costs for labor and personnel costs, of Design-Build Entity's employees and subconsultant's employees (if any), while and only to the extent they are performing Work at the Project Site. Personnel and Work compensated by this Component include without limitation: All required Project management responsibilities; all on-site services; monthly reporting and scheduling; routine field inspection of Work; general superintendence; general administration and preparation of cost proposals, schedule analysis, change orders and other supporting documentation as necessary; salaries of project superintendent, project engineers, project managers, safety manager, other manager, timekeeper, and secretaries; all cost estimates and updates thereto; development, validation and updates to the project schedule; surveying; estimating. Compensation for Design-Build Entity's General Requirements Costs included within Component 2 (Mark Up), compensates Design-Build Entity for its "General

Requirements" Costs, including without limitation: all scheduling hardware, software, licenses, equipment, materials and supplies; purchase, lease or rental, build out, procurement, supporting equipment and maintenance of temporary on-Site facilities, Project field and office trailers and other temporary facilities, office equipment and supporting utilities; platforms, fencing, cleanup and jobsite security; temporary roads, parking areas, temporary security or safety fencing and barricades, etc.; all Design-Build Entity's motor vehicles used by any Design-Build Entity's personnel, and all costs thereof; all health and safety requirements, required by law or Owner procedures; all surveying; all protection of Work; handling and disposal fees; final cleanup; repair or maintenance; other incidental Work; all items, activities and function similar to any of those described above; all travel, entertainment, lodging, board and the like.

6. Personnel compensated by the Markup Component do not include workers of foreman level or below in the case of self-performed work; rather, such personnel shall be treated as a Direct Cost of Construction. Costs compensated by the Markup component do not include temporary measures specifically required by the changed work, not otherwise required or ongoing in the prosecution of the Work, that commence specifically to support the changed work and conclude with the completion of the changed work. Such costs shall be treated as Direct Costs of Construction. Examples of General Requirements costs that this component may not cover are the following: temporary barricades or fencing of specific areas required specifically for the changed work; cranes required specifically for the changed work; extra security required specifically for the changed work.

2.04 MEASUREMENT AND PAYMENT OF BONDS INSURANCE TAXES (COST COMPONENT 3)

A. Measurement of Bonds, Insurance, Taxes (Component 3):

1. Component 3 (Bonds, Insurance, Taxes) consists of the cost of bonds, insurance and taxes, also referred to as **"BIT".** All State sales and use taxes, applicable County and applicable City sales taxes, shall be included. Federal and Excise tax shall not be included.

2. There is no mark up on BIT.

PART 3 - EFFECT OF PAYMENT

3.01 CHANGE ORDER COMPENSATION IS ALL INCLUSIVE

A. Except as provided expressly below regarding changes that extend the Contract Time, payment of calculated cost of extra work constitutes full and complete compensation for costs or expense arising from the extra Work, and is intended to be all inclusive.

B. Payment for Direct Cost of Construction (Component 1 or LEMS) is intended to be all-inclusive. Any costs or risks not delineated within cost of labor, equipment or materials herein, shall be deemed to be within the costs and risks encompassed by the applicable Markups and unallowable in any separate amount.

C. Payment of Markup (Component 2) is intended to be all-inclusive. Design-Build Entity waives claims for any further or different payment of cost and risk items delineated herein, other than the allowable percentage markup on costs set forth in the Contract Documents; such separate, further or different cost or risk items shall be unallowable, waived and liquidated within the allowable percentage markup.

D. Design-Build Entity shall recover no other costs or markups on extra work of any type, nature or description.

3.02 EXCEPTION FOR CHANGES EXTENDING THE CONTRACT TIME

A. Where a change in the Work extends the Contract Time, Design-Build Entity may request and recover additional, actual direct costs, provided Design-Build Entity can demonstrate such additional costs are (i.) actually incurred performing the Work, (ii.) not compensated by the Markup allowed, and (iii) directly result from the extended Contract Time. Design-Build Entity shall make such request and provide such documentation following all required procedures, documentation and time requirements in the Contract Documents, and subject to all contract limitations of liability. Design-Build Entity may not seek or recover such costs using formulas (e.g., Eichleay).

3.03 LIMITS OF LIABILITY / ACCORD AND SATISFACTION

A. The foregoing limits of compensation apply in all cases of claims for changed Work, whether calculating Change Proposal Requests, Change Orders or CDs, or calculating claims and / or damages of all types, and applies even in the event of fault, negligence, strict liability, or tort claims of all kinds, including strict liability or negligence. Design-Build Entity may recover no other costs arising out of or connected with the performance of extra Work, of any nature.

B. Under no circumstances may Design-Build Entity claim or recover special, incidental or consequential damages against Owner, its representatives or agents, whether arising from breach of contract, negligence, strict liability or other tort or legal theory, unless specifically and expressly authorized in the Contract Documents.

C. No change in Work shall be considered a waiver of any other condition of Contract Documents. No claim shall be made for anticipated profit, for loss of profit, for damages, or for extra payment whatever, except as expressly provided for in Contract Documents.

1. Accord and Satisfaction: Every Change Order and accepted CD shall constitute a full accord and satisfaction, and release, of all Design-Build Entity (and if applicable, Subcontractor) claims for additional time, money or other relief arising from or relating to the subject matter of the change including, without limitation, impacts of all types, cumulative impacts, inefficiency, overtime, delay and any other type of claim. Design-Build Entity may elect to reserve its rights to disputed claims arising from or relating to the changed Work at the time it signs a Change Order or approves a CD, but must do so expressly in a writing delivered concurrently with the executed Change Order or approved CD, and must also submit a Claim for the reserved disputed items pursuant to Article 12 of Document 00 7253 (General Conditions) no later than thirty (30) days after Design-Build Entity's first written notice of its intent to reserve rights. Execution of any Change Order or CD shall constitute Design-Build Entity's representation of its agreement with this provision.

3.04 DISPUTES RELATING TO CHANGE ORDERS

A. If any dispute should arise between the Owner and Design-Build Entity with respect to an increase or decrease in the Contract Sum or in the time of completion of a portion of the Work by a Specific Date or the Contract Time, as a result of a Change in the Work, Design-Build Entity shall not suspend performance of a Change in the Work or the Work itself unless otherwise so ordered by the Owner in writing.

3.05 MISCELLANEOUS REQUIREMENTS

A. Owner-Furnished Materials: Owner reserves right to furnish materials as it deems advisable, and Design-Build Entity shall have no claims for costs and Markup on such materials.

3.06 RECORDS AND CERTIFICATION

A. All charges shall be recorded daily and summarized in Change Proposal Request form attached hereto. Design-Build Entity or authorized representative shall complete and sign form each day. Design-Build Entity shall also provide with the form: the names and classifications of workers and hours worked by each; an itemization of all materials used; and a list by size type and identification number of equipment and hours operated.

B. Owner shall have the right to audit all records in possession of Design-Build Entity relating to activities covered by Design-Build Entity's claims for modification of Contract, including CD Work. This right shall be specifically enforceable, and any failure of Design-Build Entity to voluntarily comply shall be deemed an irrevocable waiver and release of all claims then pending that were or could have been subject to Article 12 of Document 00 7253 (General Conditions).

PART 4 - PRODUCTS – NOT USED

PART 5 - EXECUTION – NOT USED

END OF SECTION

COST PROPOSAL FORM FOLLOWS ON NEXT PAGE

COST PROPOSAL (CP)

Kern County BHRS Psychiatric Health Facility **CP Number: _____**

Contract Number **Date: _____**

In Response To _____
RFP #, etc.

To: COUNTY OF KERN

Attention: Kim Domingo

County Administrative Office, General Services Division
1115 Truxtun Avenue, Third Floor
Bakersfield, California 93301-4639
Phone: (661) 868-3025
Fax: (661) 868-3084

From: [Insert Design-Build Entity's Name/Address]

_____

_____

This Cost Proposal is in response to the above-referenced _____ **[insert RFP, etc. as applicable]**.

Brief description of change(s): _____

_____

ITEM DESCRIPTION	PRIME CONTRACTOR	SUB 1	SUB 2	SUB 3	SUB 4	TOTAL
MATERIAL						
LABOR						
EQUIPMENT						
Other (Specify) Extended Overhead						
TOTAL COST						
Subcontractor's Overhead & Profit 15 percent						
Design-Build Entity's Overhead & Profit 15 percent						
Overhead & Profit to Design-Build Entity for						

Subcontractor's Work 5 percent						
(percent of Total Cost above not including any Overhead & Profit – may not exceed 20%)						
GRAND TOTAL						
					REQUESTED CHANGE IN CONTRACT TIME (DAYS) (Time Impact Evaluation Enclosed)	

By Design-Build Entity: Signature: Date:

SECTION 01 3000

ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section includes description of requirements and procedures for the use of the County's Construction Management Software, submittals and project meetings.

1.03 CONSTRUCTION MANAGEMENT SOFTWARE

A. Contractor shall utilize County-provided software (Procore) for all construction related communication including, but not limited to, submittals, requests for information, emails, construction photographs and other documents. County will provide Contractor needed access to comply with this requirement at no cost to Contractor.

1.04 SUBMITTALS

A. Schedule of Submittals:

1. Owner will prepare a schedule of submittals (also referred to as a submittal register) required to complete the Work through Construction Management Software. Schedule of submittals will include, for each submittal: the specification or drawing reference requiring the submittal, if applicable; the material, item, or process for which the submittal is required; the submittal number and identifying title of the submittal; and a preliminary submission schedule.

2. The technical specifications may list several individual items required to be submitted for Owner review. The Schedule of Submittals will list each individual item required to be submitted so that all required submittals can be tracked by Contractor and Owner.

3. Preparation by Owner of schedule of submittals does not excuse Contractor of obligation to supply, schedule and coordinate all submittals required by the Contract Documents.

B. Contractor to Submit Shop Drawings, Product Data and Submittals:

1. Contractor shall review for compliance with Contract Documents, approve and submit to Owner Shop Drawings, Product Data, Samples and similar submittals required by Contract Documents. Contractor shall provide documents electronically, by providing an electronic copy in portable document format (pdf) for Owner for review, unless otherwise directed by Owner. Samples submitted for Owner's consideration shall be delivered to Owner in accordance with the individual Technical Specifications. Submittals and re-submittals shall be transmitted via electronic mail, unless otherwise directed by Owner.

2. Contractor's approval shall be indicated by a stamp or written statement on the cover sheet of the submittal with submittal identifying number clearly labeled: "This submittal is approved by <Contractor's Name> for conformance with the contract requirements for <project name>". Approval shall be signed and dated by Contractor's representative.

3. Contractor shall schedule and submit concurrently submittals covering component items forming a system or items that are interrelated. Contractor shall include certifications to be submitted with the pertinent drawings and product information at the same time.

4. Contractor shall coordinate scheduling, sequencing, preparing and processing of all submittals with performance of work so that work will not be delayed by submittal processing.

5. Submittals shall specifically identify any work depicted that does not conform to the Contract Documents with and explanation for the deviation on a separate sheet entitled "Submittal Exceptions to Contract Documents."

C. Owner Review of Shop Drawings, Product Data and Submittals:

1. Schedule submittals at least 3 weeks before dates reviewed submittals will be needed. Except as may be provided in other specification sections, a submittal will be returned in no more than 21 calendar days, as each is accepted or not accepted. When a submittal cannot be returned within that period, Owner will, within a reasonable time after receipt of submittal, give notice of the date by which that submittal will be returned.

2. After review by Owner of each submittal, Owner will return an electronic scan in portable document format (pdf) of the reviewed submittal via electronic mail to Contractor with actions defined as follows:

   a. NO EXCEPTIONS TAKEN **-** Accepted subject to its compatibility with general design concept of the Work, future Submittals and additional partial Submittals for any portions of the Work not covered in this Submittal. Does not constitute acceptance or deletion of specified or required items not shown on the Submittal.

b. MAKE CORRECTIONS NOTED (NO RESUBMISSIONS REQUIRED) - Same as item (a) above, except that minor corrections as noted shall be made by Contractor.

c. REVISE AS NOTED AND RESUBMIT - Rejected because of major inconsistencies or errors that shall be resolved or corrected by Contractor prior to subsequent review by Owner.

d. REJECTED - RESUBMIT - Submitted material does not conform to drawings and/or specifications in major respect, i.e.: wrong size, model, capacity, or material.

Contractor shall print out and distribute reviewed submittals at his discretion. Contractor shall also provide a hard copy of submittals designated “NO EXCEPTIONS TAKEN” and “MAKE CORRECTIONS NOTED” to Inspector at the project site for reference.

3. Favorable review will not constitute acceptance by Owner of any responsibility for the accuracy, coordination, or completeness of the Submittals. Accuracy, coordination, and completeness of Submittals shall be sole responsibility of Contractor, including responsibility to back-check comments, corrections, and modifications from Owner’s review before fabrication. Contractor, subcontractors, or suppliers may prepare submittals, but Contractor shall ascertain that submittals meet requirements of Contract Documents, while conforming to structural space and access conditions at point of installation. Owner’s review will be only to assess if the items covered by the Submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed project as indicated by the Contract Documents. Favorable review of Submittal, method of work, or information regarding materials and equipment Contractor proposes to furnish shall not relieve Contractor of responsibility for errors therein and shall not be regarded as assumption of risks or liability by Owner, or any officer or employee thereof, and Contractor shall have no claim under Contract Documents on account of failure or partial failure or inefficiency or insufficiency of any plan or method of work or material and equipment so accepted. Favorable review shall be considered to mean merely that Owner has no objection to Contractor using, upon Contractor’s own full responsibility, plan or method of work proposed, or furnishing materials and equipment proposed.

4. Unless otherwise specified, Owner’s review will not extend to the means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

5. Contractor shall perform no portion of the Work for which the Contract Documents require Submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been favorably reviewed by the Owner; otherwise, any such work is at Contractor's sole risk."

1.05 PROJECT MEETINGS

A. Preconstruction Conference: Owner will call for and administer Preconstruction Conference at time and place to be announced (usually the week prior to start of Work at the Site). Contractor shall attend Preconstruction Conference and shall invite Subcontractor's at Contractors discretion. Agenda may include, but not be limited to, the following items:

1. Schedules
2. Personnel and vehicle permit procedures
3. Use of premises
4. Location of the Contractor's on-Site facilities
5. Security
6. Housekeeping
7. Submittal and RFI procedures
8. Inspection and testing procedures, on-Site and off-Site
9. Utility shutdown procedures
10. Control and reference point survey procedures
11. Injury and Illness Prevention Program
12. Contractor's Initial Progress Schedule
13. Contractor's Schedule of Values
14. Contractor's Schedule of Submittals
15. Jurisdictional agency requirements
16. Owner will distribute copies of minutes to attendees. Attendees shall have 7 Days to submit comments or additions to minutes. Minutes will constitute final memorialization of results of Preconstruction Conference.

B. Biweekly Project Meetings: Contractor shall coordinate and administer biweekly progress meetings throughout duration of Work unless otherwise directed by Owner. Meetings may be tracked through Construction Management Software at Owner's requirement. Meetings shall be held at the project site, unless otherwise specified in Contract Documents.

1. Contractor shall prepare agenda and distribute it 4 Calendar Days in advance of meeting to Owner and anticipated meeting participants.

2. Participants with agenda items shall present them.

3. The Architect/Engineer and other responsible entities shall attend meetings unless otherwise specified in Contract Documents or provided by Owner.

4. Contractor shall record and distribute the meeting minutes. Minutes shall be distributed by the Contractor to the Owner and attendees within 3 Working Days after the meeting. Contractor shall distribute the minutes to those affected by decisions made at meeting. Attendees shall have five (5) Working Days to submit comments or additions to the minutes. .

5. Progress meetings shall be attended by Contractor's personnel, Owner, and others as appropriate to agenda topics for each meeting.

6. Agenda may contain, but not be limited to the following items, as appropriate:

   a. Review, revise as necessary, and approve previous meeting minutes

   b. Review of Work progress since last meeting

   c. Status of Progress Schedule, delivery schedules, adjustments

   d. Submittal, RFI, Instruction Bulletin and Change Order status

   e. Review of the Contractor's safety program activities and results, including report on all serious injury and/or damage accidents

   f. Other items affecting progress of Work

C. Progress Schedule and Billing Meetings:

1. A meeting will be held on approximately the 20th of each month to review the schedule update submittal and progress payment application.

2. At this meeting, at a minimum, the following items will be reviewed:

   a. Percent complete of each activity;

b. Time impact evaluations for Change Orders and Time Extension Request;

c. Actual and anticipated activity sequence changes;

d. Actual and anticipated duration changes; and

e. Actual and anticipated Contractor delays.

3. These meetings are considered a critical component of overall monthly schedule update submittal and Contractor shall have appropriate personnel attend. At a minimum, Contractor's General Superintendent and Scheduler shall attend these meetings.

D. Pre-Installation Conferences:

1. When required by a Technical Specification Section, schedule an on-site meeting prior to the actual installation. Attending shall be the Contractor, Installers and others whose Work may be affected by the installation. The Owner will schedule attendees as appropriate.

2. Notify Owner at least four (4) Working Days in advance of meeting date.

3. Contractor shall prepare the agenda and conduct the meeting to cover the following topics:

a. Review in detail manufacturer's requirements, Specifications, Drawings, installation details, relationships with other components, and other related Work. Anticipated or discovered conflicts, incompatibilities, and inadequacies shall be reviewed and resolved at the meeting.

b. Review in detail job conditions, environmental requirements, schedule, construction sequence, coordination with other Work, requirements for installation and quality of completed Work, and protection of adjacent Work and property.

c. Review in detail the means of protecting the completed Work during the remainder of the construction period.

4. The Contractor shall take meeting notes and distribute them within two (2) Working Days after the pre-installation conference to participants, with three (3) copies to the Owner, conference attendees and those affected by decisions made. Attendees taking exception to anything in the meeting notes shall state it in writing to Contractor within five (5) Working Days following receipt of meeting notes.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 3119

PROJECT MEETINGS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section includes description of required project meetings for construction phase of the Work, including:

1. Preconstruction Conference.
2. Schedule Review Meeting.
3. Weekly Project Meetings.
4. Pre-Installation Conferences.
5. Progress Schedule and Billing Meetings.
6. Special Meetings.
7. Safety Meetings.

1.03 PRECONSTRUCTION CONFERENCE

A. Preconstruction Conference. County will call for and administer Preconstruction Conference at time and place to be announced (usually the week prior to start of Work at the Site).

B. Design-Build Entity, all major Subcontractors, and major suppliers shall attend Preconstruction Conference. Agenda may include, but not be limited to, the following items:

1. Schedules.
2. Design-Build Entity’s Initial Progress Schedule.
3. Design-Build Entity’s Schedule of Values.
4. Design-Build Entity’s Schedule of Submittals.

5. Security.

6. Personnel security clearance procedures.

7. Use of premises.

8. Location of the Design-Build Entity's on-site facilities.

9. Housekeeping.

10. Submittal and RFI procedures.

11. Inspection and testing procedures, on-Site and off-Site.

12. Utility shutdown procedures.

13. Control and reference point survey procedures.

14. Safety.

15. Jurisdictional agency requirements.

C. County will distribute copies of minutes to attendees. Attendees shall have 7 Days to submit comments or additions to minutes. Minutes will constitute final memorialization of results of Preconstruction Conference.

1.04 SCHEDULE REVIEW MEETING

A. Refer to Section 01 3200 (Progress Schedules and Reports) for required schedule meetings.

1.05 WEEKLY PROJECT MEETINGS

A. County will schedule and administer weekly progress meetings throughout duration of Work. Progress meetings will be held weekly unless otherwise directed by County. Meetings shall be held at County's Offices unless otherwise specified in Contract Documents.

1. County's Representative will prepare agenda and distribute it 4 Days in advance of meeting to Design-Build Entity.

2. Participants with agenda items shall present them.

3. County shall record and distribute the meeting minutes. Minutes shall be distributed by the County to the Design-Build Entity within 3 business days after the meeting. Design-Build Entity shall distribute the minutes to those affected by decisions made at meeting. Attendees shall have five business days to submit comments or additions to the minutes. Minutes shall constitute final memorialization of results of meeting.

4. Progress meetings shall be attended by Design-Build Entity's job superintendent, major Subcontractors and suppliers, County, County consultants and Architect (at County's option), and others as appropriate to agenda topics for each meeting.

5. Agenda may contain the following items, as appropriate:

   a. Review, revise as necessary, and approve previous meeting minutes.

   b. Review of Work progress since last meeting.

   c. Status of Construction Work Schedule, delivery schedules, adjustments.

   d. Submittal, RFI, and Change Order status.

   e. Review of the Design Build Entity's safety program activities and results, including report on all serious injury and/or damage accidents.

   f. Other items affecting progress of Work.

1.06 PRE-INSTALLATION CONFERENCES

A. When required in individual specification section or when Owner, Architect or Design-Build Entity determines the need, the Contractor shall convene a pre-installation conference at work site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Owner and Architect seven calendar days in advance of meeting date.

D. Prepare agenda, preside at conference, record minutes and distribute copies within two days after conference to participants.

E. Review conditions of installation, preparation and installation procedures, and coordination with related work.

F. Schedule pre-installation conferences to occur immediately before or after the agreed on day / time for progress meetings.

1.07 PROGRESS SCHEDULE AND BILLING MEETINGS

A. Refer to Sections 01 2000 (Measurement and Payment) and 01 3200 (Progress Schedules and Reports) for Progress Schedule and Billing Meetings.

1.08 SPECIAL MEETINGS

A. Any party may call special meetings by notifying all desired participants and County five (5) Days in advance, giving reason for meeting. Special meetings may be held without advance notice in emergency situations.

B. At any time during the progress of Work, County shall have authority to require Design-Build Entity to schedule a meeting with County and of any or all of the Subcontractors engaged in Work or in other work, to address matters of concern to the County.

C. Design-Build Entity shall schedule and conduct coordination meetings as necessary to discharge coordination responsibilities in Document 00 7253 (General Conditions). Design-Build Entity shall give County five (5) Days written notice of coordination meetings. Design-Build Entity shall maintain minutes of coordination meetings. Attendees shall have seven (7) Days to submit comments or additions to minutes. Minutes will constitute final memorialization of results of coordination meetings.

D. Design-Build Entity to submit minutes of meetings to all attendees within three (3) days of the meeting in a format acceptable to the County.

1.09 SAFETY MEETINGS

A. Conduct Design-Build Entity Safety Committee meetings as stipulated in Design-Build Entity's Safety Plan.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 3200

PROGRESS SCHEDULES AND REPORTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of design and construction during performance of the Work, including the following:

1. Submittal Schedule.
2. Design-Build Entity's Design / Construction Schedules:
    a. Preliminary Baseline Design / Construction Schedule.
    b. Detailed Final Baseline Design / Construction Schedule.
3. Milestones.
4. Reports.
5. Schedule Meetings:
    a. Pre-Construction Conference.
    b. Weekly Schedule Meetings.
6. Schedule Updating.
7. Progress Payments.
8. Revisions to the Design / Construction Schedule.
9. Progress:
    a. Schedule Impacts, Schedule Delays, Time Extensions.
    b. Recovery Schedule.

1.03 DEFINITIONS

A. Activity:

1. A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a design or construction schedule consume time and resources.

2. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times, have no float and are on the longest path through the schedule.

3. Predecessor Activity: An activity that precedes another activity in the network.

4. Successor Activity: An activity that follows another activity in the network.

B. Cost-loading: The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Stipulated Sum, unless otherwise approved by the County.

C. Critical Path Method (CPM): A method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Kern County BHRS Psychiatric Health Facility.

D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Kern County BHRS Psychiatric Health Facility duration and contains no float.

E. Event: The starting or ending point of an activity.

F. Float:

1. The measure of leeway in starting and completing an activity.

2. Float time is not for the exclusive use or benefit of either County or Design-Build Entity, but is a jointly owned, expiring Kern County BHRS Psychiatric Health Facility resource available to both parties as needed to meet schedule milestones and Contract completion dates. Design-Build Entity's use of float must be pre-approved by the County prior to use.

3. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.

4. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Kern County BHRS Psychiatric Health Facility completion date.

G. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

H. Major Area: A story of construction, a separate building, or a similar significant construction element.

I. Milestone: A key or critical point in time for reference or measurement.

J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

K. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.04 SUBMITTALS

A. Refer to Section 01 3300 (Submittals) for submittal procedures.

B. Qualification Data: Submit qualifications for a full-time Scheduling Manager. See 1.05.A and 1.07.D below.

C. Submittal Schedule:

1. Submit three copies of the Submittal Schedule. Arrange the following information in a tabular format:

a. Scheduled date for first submittal.

b. Final Specification Section number and title, cross-referenced to Performance Specifications in the Bridging Documents.

c. Submittal category (action or informational).

d. Name of subcontractor.

e. Description of the Work covered.

f. Scheduled date for the County's final release or approval.

D. Preliminary Baseline Design / Construction Schedule:

1. Submit two opaque copies, large enough to show entire network for entire design and construction periods. Show logic ties for activities.

E. Design-Build Entity’s Detailed Final Baseline Design / Construction Schedule

1. Submit two opaque copies of initial schedule, large enough to show entire schedule for entire design and construction periods.

2. Submit an electronic copy of schedule, using software, and labeled to comply with requirements for submittals. Include type of schedule (Initial, Master or Updated) and date on label.

F. CPM Reports:

1. Concurrent with CPM schedule, submit three copies of each of the following computer-generated reports. Format for each activity in reports must contain activity number, activity description, cost and resource loading, original duration, remaining duration, Early Start Date, early finish date, late start date, late finish date, and total float in calendar days.

a. Activity Report: List of all activities sorted by activity number and then Early Start Date, or Actual Start Date if known.

b. Activity Report: List of all activities sorted by Early Start Date or Actual Start Date if known.

c. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then Early Start Date, or Actual Start Date if known.

d. Total Float Report: List of all activities sorted in ascending order of total float.

e. Earnings Report: Compilation of Design-Build Entity's total earnings from the Notice to Proceed (NTP) until most recent Application for Payment.

1.05 QUALITY ASSURANCE

A. Scheduling Manager Qualifications:

1. An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within twenty four (24) hours of the County's request. Scheduling Manager must show at least ten (10) years in scheduling similar projects and expertise in the use of all scheduling software required by this Section 01 3200, including, but not limited to, Primavera P6 Enterprise Project Portfolio Management, version 8 or later, as required in 2.03.A below.

B. Pre-Scheduling Conference:

1. Conduct conference at Kern County BHRS Psychiatric Health Facility site to comply with requirements in Section 01 3000, Administrative Requirements. Review methods and procedures related to the Preliminary Design / Construction Schedule and Design-Build Entity's Design / Construction Schedule, including, but not limited to, the following:

a. Review software limitations and content and format for reports.

b. Verify availability of qualified personnel needed to develop and update schedule.

c. Discuss constraints, including phasing, work stages, area separations, interim milestones, and partial County occupancy.

d. Review anticipated AHJ review times.

e. Review delivery dates for County-furnished products.

f. Review time to acquire, set up and occupy the field office(s).

g. Review dates established in the County's Kern County BHRS Psychiatric Health Facility Milestone Schedule and other milestones of important events.

h. Review dates of all mobilization activities on site, including notices and permits.

i. Review dates detailing the planned design schedule, including submittals and reviews.

j. Review schedule for work of County's separate contracts.

k. Review time required for review of other submittals and resubmittals.

l. Review requirements for tests and inspections by independent testing and inspecting agencies.

m. Review time required for completion and startup procedures.

n. Review and finalize list of construction activities to be included in schedule.

o. Review submittal requirements and procedures.

p. Review procedures for updating schedule.

1.06 COORDINATION

A. General:

1. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

2. Coordinate Design-Build Entity's Design / Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

3. Secure time commitments for performing critical elements of the Work from parties involved.

4. Coordinate each design and construction activity in the network with other activities and schedule them in proper sequence.

1.07 GENERAL SCHEDULING REQUIREMENTS

A. The Design-Build Entity will develop and maintain the Design / Construction Schedule for the scope of work contained in the Contract. The purpose of the Design / Construction Schedule will be to:

1. Assure adequate planning, scheduling, and reporting during execution of the design, construction and related activities so they may be prosecuted in an orderly and expeditious manner, within the Contract Time and the Milestones stipulated by the Agreement or other Contract Documents;

2. Assure coordination of the work of the Design-Build Entity and the various Designers, subcontractors and suppliers at all tiers;

3. Assist in the preparation and evaluation of the Design-Build Entity's monthly progress payments;

4. Assist in monitoring the progress of the work and evaluating proposed changes to the Contract and the Construction Schedule; and,

5. Assist in detecting problems for the purpose of taking corrective action and to provide a mechanism or tool for determining and monitoring such corrective actions.

B. The Work will be prosecuted such that it will insure meeting the specified Contract Time. By execution of the Agreement, the Design-Build Entity represents that he has analyzed the work, the requirements of design, the materials and methods involved, the systems of the building, availability of qualified professional personnel and labor, restrictions of the site, constraints imposed, their own workload and capacity to perform the work, and agrees that the specified times are reasonable considering the existing conditions prevailing in the locality of the work, including weather conditions, and other factors, with only the allowance for variations from average or ideal conditions otherwise permitted in Contract Documents.

C. The work under this Contract will be planned, scheduled, executed and reported using the Precedence Diagraming Technique of the Critical Path Method (hereinafter referred to as CPM).

D. The Design-Build Entity must employ the full-time services of at least one Scheduling Manager (not the Project Manager, Project Engineer, Foreman or Superintendent) fully qualified in critical path scheduling of projects of similar size and scope for the duration of the Contract.

E. Any and all milestones listed in these specifications, or elsewhere in the Contract Documents, represent only certain major items of design or construction work. The milestone completion dates indicated are considered essential to the satisfactory performance of this Contract and to the coordination of all work on the Kern County BHRS Psychiatric Health Facility. The County reserves the right to require the Design-Build Entity to prosecute the work in accordance with the specified milestone dates.

PART 2 - SCHEDULING SUBMITTALS

2.01 SUBMITTAL SCHEDULE

A. Preparation:

1. Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, re-submittals, ordering, manufacturing, fabrication, and delivery when establishing dates.

2. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Design-Build Entity's Construction Schedule.

3. Initial Submittal: Submit concurrently with Preliminary Baseline Design / Contraction Schedule. Include submittals required during the first 120 calendar days of design and construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

4. Final Submittal: Submit concurrently with the first complete submittal of Design-Build Entity's Detailed Final Baseline Design / Construction Schedule.

2.02 DESIGN-BUILD ENTITIY'S DESIGN / CONSTRUCTION SCHEDULES, GENERAL

A. Procedures: Comply with procedures contained herein.

B. Time Frame:

1. Extend schedule from date established for the NTP to date of Completion.

2. Contract completion date will not be changed by submission of a schedule that shows an early or late completion date, unless specifically authorized by Change Order.

C. Activities:

1. Treat each story or separate area as a separate numbered activity for each principal element of the Work.

2. Activity Duration: Define activities so no activity is longer than fifteen (15) working days, unless specifically allowed by the County.

3. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than sixty (60) calendar days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.

4. Submittal Review Time: Include review and re-submittal times required in Section 01 3300 (Submittals) in the schedule. Coordinate submittal review times in Design-Build Entity's Construction Schedule with Submittals Schedule.

5. Startup and Testing Time: Include not less than ten (10) working days for startup and testing.

6. Completion: Indicate completion in advance of date established for Completion, and allow time for the County's administrative procedures necessary for the County to issue a Certification of Completion.

D. Constraints:

1. Include constraints and work restrictions required in the Contract Documents (including Bridging Documents and final Construction Documents) and as follows in schedule, and show how the sequence of the Work is affected.

a. Phasing: Arrange the list of activities on the schedule by phase. Include the major phasing required such as Design and Construction Phases with sub-phases of work below them.

b. Work by the County: Include a separate activity for each portion of work performed by the County.

c. Products Ordered in Advance: Include a separate activity for each product. Include the earliest possible delivery dates.

d. The County-Furnished Products: Include a separate activity for each product.

E. Work Restrictions: Show the effect of the following items on the schedule:

1. Coordination with existing construction.

2. Limitations of continued occupancies.

3. Uninterruptible services.

4. Partial occupancy before Completion.

5. Use of premises restrictions.

6. Provisions for future construction.

7. Environmental control.

F. Work Stages: Indicate important stages of design and construction for each major portion of the Work, including, but not limited to, the following:

1. Construction Documents and other design phases under Section 01 1101 (Summary of Work – Design-Build Design Services)

2. Subcontract awards.

3. Submittals.

4. Purchases.

5. Mockups.

6. Fabrication.

7. Sample testing.

8. Deliveries.

9. Installation.

10. Tests and inspections.

11. Commissioning

12. Adjusting.

13. Curing.

14. and placement into final use and operation.

G. Area Separations: Identify each major area of construction for each major portion of the construction Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:

1. Structural completion.

2. Permanent space enclosure.

3. Completion of mechanical installation.

4. Completion of electrical installation.

5. Completion.

H. Milestones:

1. Incorporate key milestones in the schedule, including, but not limited to the Kern County BHRS Psychiatric Health Facility Milestones identified in the Agreement, and as follows:

a. Notice to Proceed.

b. Start Construction Documents.

c. Complete 35% Construction Documents Phase - System Confirmation & Basis of Design (Show all Incremental Design Packages with Submittal and Review Dates).

d. Submit All 35% Construction Documents.

e. Complete 50% Construction Documents Phase (Show all Incremental Design Packages with Submittal and Review Dates).

f. Complete 95% Construction Documents Phase (Show all Incremental Design Packages with Submittal and Review Dates).

g. Complete 100% Construction Documents Phase (Show all Incremental Design Packages with Submittal and Review Dates).

h. Submit All Stamped and Approved Kern County and required by other Authorities having Jurisdiction. 100% Construction Documents.

i. Start Construction.

j. Complete Construction.

k. Start Furnishings, Fixtures and Equipment (FFE) Installation.

l. Completion of Work.

m. Start Occupancy.

n. Complete Commissioning.

I. Cost Correlation:

1. At the front of the schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.

2. Refer to Section 01 2000, (Measurement and Payment), for cost reporting and payment procedures.

3. Design-Build Entity will assign cost to construction activities on the CPM schedule. Costs must be assigned to each submittal activity line item on the Schedule of Values. Costs must be listed under the required principal subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, Kern County BHRS Psychiatric Health Facility Record Documents, and demonstration and training.

4. Each activity cost will reflect an accurate value subject to approval by the County.

5. Total cost assigned to activities must equal the total Stipulated Sum.

J. Contract Modifications:

1. For each proposed Contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

2.03 PRELIMINARY BASELINE DESIGN / CONSTRUCTION SCHEDULE

A. The Design-Build Entity must use Primavera P6 Enterprise Project Portfolio Management, version 8 or later on this Kern County BHRS Psychiatric Health Facility Project. With each schedule submittal, Design-Build Entity will provide compact disks with back-up files of the entire schedule in the scheduling software program. PDF's are acceptable for historical record only.

B. Within thirty (30) calendar days after the date of the NTP, the Design-Build Entity must submit for the County's review and acceptance a Preliminary Baseline Schedule. This schedule must show the general plan for the work to be completed in the first one hundred and twenty (120) calendar days of the Contract. Indicate each significant activity separately and identify the first workday of each week with a continuous vertical line. Include a Summary Bar diagram for the remainder of the Work showing major milestones and summary activities with a cash requirement prediction based on required activities.

C. The Preliminary Baseline Schedule must define milestones for the Kern County BHRS Psychiatric Health Facility. The milestones must include but are not limited to the Kern County BHRS Psychiatric Health Facility Milestones identified in the Agreement, and as follows:

1. Design Schedule Milestones (show milestones for each Incremental Design Package as appropriate and for each Agency reviewing them):

a. Notice to Proceed.

b. Complete Survey and Confirmation of Existing Utilities, Services and Geotechnical Explorations.

c. Complete Management Plans.

d. Partnering Session(s).

e. Complete Code Analysis / Life Safety Plan.

f. Complete Site Mobilization, Lay Down Areas and Parking Plans.

g. Complete Design and Construction Package Phasing Plan.

h. Start 35% - CDs – Systems Confirmation and Basis of Design.

i. Submit 35% CDs for Review.

j. 35% CDs Approved.

k. Complete 35% CDs - System Confirmation and Basis of Design.

l. Start 50% CDs.

m. Submit 50% CDs for Review.

n. 50% CDs Approved.

o. Complete 50% CDs.

p. Start 95% CDs.

q. Submit 95% CDs for Review.

r. 95% CDs Approved.

s. Complete 95% CDs.

t. Start 100% CDs.

u. Submit 100% CDs for Review.

v. 100% CDs Approved.

w. Complete 100% CDs.

2. Construction Schedule Milestones (including but not limited to:)

a. Start Construction (per Incremental Package Phase).

b. Approve Construction Schedule.

c. Obtain Licenses, Fees, Permits.

d. Temporary Power Available.

e. Start County's On-Site Field Office.

f. Complete County's On-Site Field Office (Occupancy).

g. Facility Watertight.

h. Permanent Power Available.

i. Other Utilities (Gas, Water, Fire Service, Sewer, Phone, etc.) Available.

j. Start Functional Testing.

k. Start Training and Demonstrations.

l. Complete Construction (per Incremental Package Phase).

m. Start FEE Installation.

n. Completion of Work (Including receipt of all licenses).

o. Certification of Completion.

p. Complete Demobilization.

q. Complete Commissioning.

D. Proposed Procurement Activities to be accomplished during the first one hundred and twenty (120) calendar days of the Contract.

1. Procurement activities must include mobilization, major shop drawing and sample submittals and the fabrication and delivery of key and long lead procurement elements and must indicate intended submittal, review and approval, and realistic delivery dates for fabrication and delivery activities.

2. Procurement activities will later be incorporated into the Detailed Design / Construction Schedule (discussed hereinafter) including all requested revisions.

E. Proposed Design / Construction Activities to be accomplished during the first one hundred and twenty (120) calendar days of the Contract.

1. Activity durations must be in units of whole working days and must be limited to a maximum of fifteen (15) working days twenty-one (21) calendar days for each activity.

2. Design / Construction activities will later be incorporated into the Detailed Design / Construction Schedule (discussed hereafter) including all requested revisions.

F. Summary Activities not included above which are necessary to properly indicate:

1. The approach to scheduling the remaining work areas or phases of the work. The work for each phase or area must be represented by at least one summary activity such that they cumulatively indicate the entire Design / Construction Schedule.

2. The approximate cost and duration for each summary activity must be shown on the Preliminary Baseline Schedule.

a. The Preliminary Baseline Schedule must conform with the requirements outlined in the “Technical Requirements for Design-Build Entity-submitted Schedules” in this specification section.

b. The Cost-loaded Preliminary Baseline Schedule will be the basis for progress payments during the first one hundred and twenty (120) calendar days of the Contract while the Detailed Final Baseline Design/Construction Schedule (discussed hereafter) is being developed and accepted.

c. The Preliminary Baseline Schedule must be updated on a monthly basis while the Detailed Final Baseline Design / Construction Schedule is being developed. The monthly updating of the Preliminary Baseline Schedule must be consistent with the procedures and requirements described in the “Schedule Updating” section of this specification section.

d. The Preliminary Baseline Schedule must be used for the preliminary review of time extension request(s) during the first one hundred and twenty (120) calendar days of the Contract while the Detailed Final Baseline Design / Construction Schedule is being developed.

e. Within fourteen (14) calendar days after receipt by the County of the Preliminary Baseline Schedule, the County will make recommendations to the Design-Build Entity as to adjustments to the Preliminary Baseline Schedule. These recommendations, if accepted by both the County and Design-Build Entity, will be incorporated into the development of the Detailed Final Baseline Design/Construction Schedule. The Design-Build Entity must provide a response to the concerns of the County, to the satisfaction of the County, before the submittal of the Detailed Design / Construction Schedule.

2.04 DETAILED FINAL BASELINE DESIGN / CONSTRUCTION SCHEDULE

A. Within ninety (90) calendar days following Notice to Proceed, Design-Build Entity will submit to the County a proposed Detailed Final Baseline Design / Construction Schedule in CPM format for the Design-Build Entity's design and construction work scope.

B. The proposed Detailed Design / Construction Schedule must conform with the requirements outlined in the "Technical Requirements for Design-Build Entity-Submitted Schedules" in this specification section.

C. The proposed Detailed Final Baseline Design / Construction Schedule will be reviewed in the following manner:

1. Within fourteen (14) calendar days after receipt by the County of the proposed Detailed Final Baseline Design/Construction Schedule, the County must notify the Design-Build Entity of any concerns the County may have in regard to the Schedule.

2. If the County questions the Design-Build Entity's proposed activities, logic, durations, manpower, or cost loading, the Design-Build Entity must, within seven (7) calendar days after receipt of the County's request, provide a satisfactory revision to, or adequate justification for, these activities, logic, durations, manpower, or Cost-loading to the satisfaction of the County.

3. In the event the Design-Build Entity fails to define any element of work, activity or logic and the County review does not detect this omission or error, such omission or error, when discovered by the Design-Build Entity or County, must be corrected by the Design-Build Entity at the next monthly Schedule Update and or weekly progress meeting, (discussed hereinafter) and will not affect the Contract Time.

D. Upon the acceptance of the changes to the proposed Detailed Final Baseline Design/Construction Schedule by the County, the Design-Build Entity and County will demonstrate their mutual acceptance by signing the front of the Detailed Final Baseline Design/Construction Schedule. The County's acceptance is subject to J below.

E. Upon acceptance, the design/construction schedule will be utilized as a BASELINE SCHEDULE for evaluation of all work yet to be performed.

F. No accepted activity will be deleted from the Detailed Design / Construction Schedule. In the event that an activity is no longer appropriate to the plan, either by change order or otherwise, it will be statused with "zero duration" as of the date such determination is made and offsetting cost adjustment made as required to balance within the activity's cost account.

G. Redistribution of costs between Contract bid line items will not be allowed.

H. Acceptance by the County of the Design-Build Entity's Detailed Final Baseline Design / Construction Schedule will be a condition precedent to the making of any progress payments under the Contract after the first one hundred and twenty (120) calendar days of the Contract.

I. Upon acceptance of the Detailed Final Baseline Design / Construction Schedule by the County, the cost-loaded values of the Schedule will be used as a basis for determining progress payments based on work completed to date, in conjunction with the Schedule of Values. Monthly progress payments will be based upon information developed at the monthly Schedule Update. The computer-produced Cost Report will be structured to directly roll up to the accepted billing summary and utilized by the County for verification of the Application for Payment submitted by the Design-Build Entity.

J. Acceptance by the County of the Design-Build Entity's Detailed Final Baseline Design/Construction Schedule does not relieve the Design-Build Entity of any of Design-Build Entity's responsibility whatsoever for the accuracy or feasibility of the Detailed Design / Construction Schedule, or of the Design-Build Entity's ability to meet the Contract completion date or milestone dates, nor does such acceptance acknowledge or admit the reasonableness of the activities, logic, durations, manpower, or Cost-loading of the Design-Build Entity's Detailed Design/Construction Schedule.

K. General:

1. Prepare network diagrams using AON (activity-on-node) format.

2. Preliminary Baseline Design/Construction Schedule: Submit schedule within 30 calendar days of date established for the Notice to Proceed. Outline significant construction activities for the first one hundred and twenty (120) calendar days of design and construction. Include summary bar diagrams for the remainder of the Work and a cash requirement prediction based on required activities.

3. CPM Schedule:

a. Prepare Design-Build Entity's Detailed Final Baseline Design/Construction Schedule using a computerized, cost- and resource-loaded, time-scaled CPM network analysis diagram for the Work.

b. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than ninety (90) calendar days after date established for the Notice to Proceed. A CPM network that incorporates all activities with descriptions, sequence, logic relationships, duration estimates, resource-loading, cost loading and other information defined for all design, pre-construction and construction activities. Each activity will have a minimum of one predecessor and one successor, with the exception of the first and last milestone activities. The first milestone activity must be the

"Notice to Proceed" and the last activity will be denoted as "Final Completion. Both are Contract Milestones.

c. Failure to include any work item required for performance of this Contract will not excuse Design-Build Entity from completing all work within applicable completion dates, regardless of the County's approval of the schedule.

d. Conduct educational workshops to train and inform key Kern County BHRS Psychiatric Health Facility personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.

e. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.

f. Use "one workday" as the unit of time. Include list of nonworking days and holidays incorporated into the schedule as a calendar. However, the Contract time is in calendar days.

4. CPM Schedule Preparation:

a. Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a network to identify probable critical paths.

b. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:

c. Preparation and processing of submittals.

d. Mobilization and demobilization.

e. Purchase of materials.

f. Delivery.

g. Fabrication.

h. Utility interruptions.

i. Temporary facilities

j. Installations.

k. Work by the County that may affect or be affected by Design-Build Entity's activities.

l. Testing and commissioning.

L. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates must be consistent with Article 2 of the Agreement.

M. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.

1. Format:

a. Identify and mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.

b. Sub-networks on separate sheets are permissible for activities clearly off the critical path.

N. Initial Issue of Schedule:

1. Prepare initial network diagram from a list of straight "early start-total float" sort. Identify critical path activities. Prepare tabulated reports showing the following:

a. Design-Build Entity or Designer or subcontractor and the Work or activity.

b. Description of activity.

c. Principal events of activity.

d. Immediate preceding and succeeding activities.

e. Early and late start dates.

f. Early and late finish dates.

g. Activity duration in workdays.

h. Total float or slack time.

i. Average size of workforce.

j. Dollar value of activity (coordinated with the Schedule of Values).

O. Schedule Updating:

1. Concurrent with making revisions to schedule, prepare a narrative with each update and tabulated reports showing the following:

a. Identification of activities that have changed.

b. Changes in early and late start dates.

c. Changes in early and late finish dates.

d. Changes in activity durations in workdays.

e. Changes in the critical path.

f. Changes in total float or slack time.

g. Changes in the Contract Time.

P. Value Summaries:

1. Prepare two cumulative value lists, sorted by finish dates.

2. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.

3. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.

4. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.

5. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.

a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.

b. Submit value summary printouts 2 business days before each regularly scheduled progress meeting.

2.05 MILESTONES

A. The Design-Build Entity must adhere to the following Milestone submittal dates in accomplishing the work unless such dates are modified in writing by the County:

EVENT	MILESTONE DATE
Preliminary Baseline Design/Construction Schedule Submittal	NTP + 30 Days
Proposed Detailed Final Baseline Design/ Construction Schedule Submittal	NTP + 90 Days

PART 3 - TECHNICAL REQUIREMENTS

3.01 TECHNICAL REQUIREMENTS FOR DESIGN-BUILD ENTITY SCHEDULES

A. The Design-Build Entity will consider the following guidelines in the development of the Construction schedule:

1. The Schedule must be developed utilizing the Precedence Diagramming Method.

2. Milestone dates must be adhered to and will be clearly identified on the Schedule.

   a. Milestone dates may not be changed without the written consent of the County.

   b. Contract Start Milestones will be constrained by “Start No Earlier Than” constraints.

   c. Contract Completion Milestones will be constrained by “Finish No Later Than” constraints.

   d. “Mandatory”, “Start On”, and “Finish On” constraints will not be allowed.

3. The Schedule must clearly identify the activities illustrating accomplishment of the time(s) for completion of the Kern County BHRS Psychiatric Health Facility set forth in the Agreement. If the Schedule indicates earlier completion time(s) than that set forth in the Agreement, the difference between the Schedule and the Agreement dates will be considered to be part of the total float available. This float is a resource available to both the County and the Design-Build Entity, as provided in 1.03.F.2 above and Part 5 below. If the Design-Build Entity presents a schedule with an early completion date, the County reserves the right to issue a Contract change order revising the Contract Completion Date and associated milestones to those indicated in the Design-Build Entity’s schedule. However, the Contract time will not be revised unless a Contract change order has been issued and executed by both parties.

4. In developing the Schedule, the Design-Build Entity will be responsible for assuring that subcontractor work at all tiers, as well as Design-Build Entity’s own work, is included in the Schedule.

5. The Schedule must show the sequence and interdependence of activities required for complete performance of the work. The Design-Build Entity will be responsible for assuring all work sequences are logical and the Schedule shows a coordinated plan of the work.

6. The schedule must only contain two (2) open ended activities. NTP with no predecessor relationship and Kern County BHRS Psychiatric Health Facility Complete with no successor relationship.

7. Failure by the Design-Build Entity to include any element of work required for performance of the Contract or failure to properly sequence the work will not excuse the Design-Build Entity from completing all work within the Contract Time.

8. The level of detail of the Design-Build Entity's Schedule will be a function of the complexity of the work involved. The total number of activities will be subject to approval by the County. Construction activities must represent the continuous work of a single crew in a defined work area or location and have a duration of not longer than fifteen (15) workdays, without prior acceptance of the County. Non-construction/non-design activities (such as procurement, fabrication, etc.) may have durations in excess of 15 work days.

9. Normal weather conditions will be considered and included in the planning and scheduling of all work influenced by high or low ambient temperatures, wind, and/or precipitation to ensure completion of all work within the Contract Time. Expected weather delays will be added as an activity to the back of the schedule and treated as weather float. The use of this weather float must be requested by the Design-Build Entity and approved by the County in advance of adjusting the schedule. The duration of the weather float activity will be based on the number of weather days provided in Document 00 7253 (General Conditions), paragraph 15.01.

    a. Establish a weather station on the jobsite to record rainfall.

    b. Work will be planned to minimize the impact of rain and include the grading of the work area, installation of dewatering pumps and provision of covers.

    c. Keep drainage and dewatering systems operable 24 hours and 7 days each week throughout construction.

    d. No "Rain Days" will be allowed for rain less than <0.10" per day as measured on the jobsite.

10. Schedule activities must meet the following criteria:

    a. Activity descriptions must be clear and concise. All activity ends must be tied into the schedule by logical restraints.

11. Proposed durations assigned to each activity will be the Design-Build Entity's best estimate of time required to complete the activity considering the scope and resources planned for the activity. Resources and Labor (Manhours) allocated to each activity must be consistent with activity duration and supported by the Design-Build Entity's estimate and industry

standard estimating/productivity guides such as “Means” and / or “Walker’s”.

12. Responsibility for each activity must be identified with a single performing organization, typically the Subcontractor name. WBS structure must be utilized by the Design-Build Entity as agreed by the County.

13. Schedule activities will be cost-loaded in whole dollars and the assigned dollar value (cost-loading) of each activity of the Network must cumulatively equal the Total –Stipulated Sum Amount. The tasks and amounts in the cost-loaded schedule will be utilized as the Schedule of Values for progress payment purposes. Mobilization, bond and insurance costs may be shown separately; however, other General Conditions costs, overhead, profit, etc., will be prorated throughout all activities. For any items that the Design-Build Entity intends to bill for stored materials, these items need to be shown as separate “material procurement” activities in the schedule and the material dollars only placed on these activities. Billing for stored materials on any other schedule activities not broken out in this manner will not be allowed.

14. Design-Build Entity will assign manpower-loading for each activity of the Network. In addition, the Design-Build Entity will prepare and submit a separate manpower summary analysis in graphic format depicting manpower by subcontractor and aggregate. The graph(s) must show the number of man-days of effort, by month, over the duration of the Construction Schedule.

15. For all major equipment and materials fabricated or supplied for this Kern County BHRS Psychiatric Health Facility Project, the network must show a sequence of activities including:

    a. Preparation of shop drawings and sample submissions. Any accepted costs associated with submittal preparation will be assigned to the approval of the particular submittal.

    b. Review and approval of shop drawings and samples: allow 30 calendar days for review of major submittals and samples, and 14 calendar days for review of all other submittals).

    c. Shop fabrication and delivery (including transit time). Advanced purchases such as mill orders or other major equipment purchases will be carried as separate Cost-loaded activities.

    d. Erection or installation.

16. Field Testing of Equipment and Materials. Testing and Inspection will be cost- and labor-loaded to the extent of the effort necessary in the field.

a. The schedule must include a detailed plan for preparation, submittal, review, re-submittal, if required, and acceptance for detailed MEPS / Structural / Architectural Coordination Documents prepared by the individual trade subcontractors utilizing CAD backgrounds supplied by the Architect of Record.

b. If requested by the County, the Design-Build Entity will furnish a written narrative of the Design-Build Entity's determination of durations for critical activities. Such explanation must include the number of crews, crew composition, number of shifts per day, number of hours in a shift and the number of work days per week. The Design-Build Entity will provide a list of the major items of construction equipment intended for use on this Project's operations including types, number of units, unit capacities and the proposed time each piece of equipment will be on the job, keyed to the activities on which the equipment will be used.

17. For each Construction Schedule submittal, as well as for each Schedule Update, the Design-Build Entity will provide the following to the County as specified in the "Required Reports section of this specification:

    a. Compact Disc containing the Construction Schedule in the native format of the scheduling software. All schedules, graphics and reports in PDF format.

    b. Three (3) color prints of all schedules, graphics, and reports.

18. Other activities must consider indicating the start and finish dates for Kern County BHRS Psychiatric Health Facility design, engineering, preparation of design development and construction documents, government agency plan check and County agency document review.

19. Activities to be integrated and shown in the CPM network must include all milestones representing the Design-Build Entity's submittal dates and activities representing the County's review period of each submittal; Design-Build Entity's procurement of materials and equipment; submittals; manufacture and / or fabrication, testing and delivery to the jobsite of special material and major equipment; equipment installation and preliminary, final and performance testing of equipment or systems.

20. Activities showing the start and finish dates for all temporary works; all construction of mock-ups, and prototypes and/or samples.

21. Activities showing start and finish dates of owner-furnished items and interface requirement dates with other contractors; regulatory agency approvals; and permits required for the performance of the work.

22. Activities showing start and finish of modular system furniture.

23. Activities related to commissioning and close-out.

24. The schedule must consider all foreseeable factors or risks affecting, or which may affect the performance of the work, including historical and predicted weather conditions, applicable laws, regulations or collective bargaining agreements pertaining to labor, transportation, traffic, air quality, noise and any other applicable regulatory requirements.

25. The Design-Build Entity will not use any “float suppression” techniques such as preferential sequencing or logic, special led / lag constraints or unjustifiably over-estimating activity durations in preparing its schedule.

26. The Design-Build Entity will not use negative lag.

27. All activities requiring time to complete must be included in the schedule as an activity (Cure time, etc.). The Design-Build Entity will not consume time by the use of finish-to-start relationships with positive lag.

28. The Design-Build Entity must attach a narrative report which explains assumptions used for activity durations, its assumptions regarding crew sizes, equipment requirements and production rates, any potential areas of concern or specific areas requiring coordination it may have identified and any long-lead time materials or equipment in the work.

29. The Design-Build Entity’s Scheduling Manager will formally present the detailed time-scaled CPM network for the duration of the Contract time, demonstrating compliance with -Article 2 of the Agreement and other requirements to the County clearly showing the critical path(s) of the Kern County BHRS Psychiatric Health Facility through completion.

PART 4 - REPORTS

4.01 REQUIRED SCHEDULING REPORTS

A. As a part of the Detailed Design / Construction Schedule submittals, as well as for each Schedule Update, the Design-Build Entity must submit the following reports and graphics as indicated:

1. Graphics:

a. Detailed CPM Network with critical path highlighted sorted by Early Start Dates.

b. Detailed Gantt chart grouped by WBS and sorted by Early Start ascending, Early Finish ascending. (Initial Submittal and When Revised).

c. Short-interval Gantt chart showing 1 week of history and 3 weeks of future work (Weekly).

d. Cost curve and histogram (Initial Submittal and When Revised.)

e. Manpower curve and histogram (Initial Submittal and When Revised.)

f. Milestones only.

2. Computerized Schedule Reports:

a. Activity listing report showing all schedule activities, sorted by activity number. (Initial Submittal.)

b. Milestone Summary Report listing all milestones.

c. Precedence report showing activity predecessors and successors, including relationship type and lag, sorted by activity number. (Initial Submittal and When Revised.)

d. Total float report, sorted by total float from low to high. (Initial Submittal and When Revised.)

e. Early start report, grouped and sorted by Early Start Date.

f. Cost report showing activity dollar value, dollar value of work in place to-date, and dollar value for current period. (Initial Submittal and When Revised.)

g. Resource report showing man-day allocations by specific trade on each activity. (Initial Submittal and When Revised.)

h. Variance report comparing current dates to target dates. (Monthly Updates.)

i. Cash flow report showing monthly projections of expenditures. (Initial Submittal and When Revised.)

3. Narrative schedule report including:

a. Description of the actual work accomplished during the reporting period. (Monthly Updates)

b. Description of any problem areas. (Initial Submittal and Monthly Updates.)

c. Description of current and anticipated delays with recommended corrective actions to mitigate such delays. (Monthly Updates.)

d. A list of major construction equipment used on the work during the reporting period and any construction equipment idle during the reporting period. (Monthly Updates.)

e. A total number of men by craft actually engaged on the work during the reporting period, with such total Stated separately as to office, supervisory, and direct labor. (Monthly Updates.)

f. A list of Design-Build Entity-supplied permanent materials, long lead items and equipment indicating current availability and anticipated job site delivery date. (Initial Submittal and When Revised.)

g. A list and explanation of proposed modifications, additions, deletions, and changes in logic to the approved construction schedule. If modifications are proposed a when Revised schedule demonstrating the effects of such modifications is to be submitted. (Monthly Updates.

PART 5 - FLOAT

5.01 FLOAT TIME

A. Float is not for the exclusive use or benefit of either the Design-Build Entity or the County. Float time will be apportioned according to the needs of the Kern County BHRS Psychiatric Health Facility as approved by the County.

B. Pursuant to the float sharing requirements as set forth in paragraph 5.01A, use of float suppression techniques such as preferential sequencing, special lead/lag logic restraints, extended activity durations, or constrained dates may be cause for rejection of the Construction Schedule and any revisions or updates.

PART 6 - SCHEDULE MEETINGS

6.01 PRE-CONSTRUCTION CONFERENCE

A. The Design-Build Entity will schedule and conduct a schedule preconstruction conference. Design-Build Entity must be prepared to review and discuss the schedule and sequence of operations plus cost and manpower loading methodology. The conference will be attended by:

1. Design-Build Entity's Project Manager, Superintendent, and Scheduler.

2. Any other Design-Build Entity's key personnel, Subcontractor's representatives, and major supplier's representatives that the Design-Build Entity deems advisable to attend.

3. Representatives from the County and other agencies will also be invited to attend.

B. Procedures will be reviewed for the following:

1. Development of the Detailed Design/Construction Schedule by the Design-Build Entity.

2. Periodic updating of schedule activities and method of determining schedule percent complete.

3. Organizational / WBS / Account Code Structures required for the Kern County BHRS Psychiatric Health Facility.

4. Cost-loading of activities.

5. Manpower loading of activities.

6. Procedures for making modifications to the schedule.

7. Procedures for assessing schedule impacts, schedule delays, and time extensions.

8. Development of recovery schedules.

9. Data exchange and communications.

6.02 WEEKLY SCHEDULE MEETINGS

A. Once each week, on a day mutually agreed to by the County and the Design-Build Entity, a meeting will be held to assess the progress achieved by the Design-Build Entity during previous work week. The Design-Build Entity must submit a progress schedule listing the activities completed and in progress for the previous week and the activities scheduled for the succeeding 3 weeks. A bar chart directly derived from the Detailed Design/Construction Schedule will be used to generate the three-week window. All activities shown in this short interval schedule will be identified by the same activity numbers and descriptions as shown in the Construction Schedule. The Design-Build Entity may add further details to monitor this Short Interval Schedule.

B. If deemed necessary by the County, the County may at its option require more frequent schedule meetings.

PART 7 - SCHEDULE UPDATING AND PROGRESS PAYMENTS

7.01 SCHEDULE UPDATING

A. A meeting will be held on approximately the 25th of each month to review the Schedule update submittal and progress payment application. This updating process will be performed by the County and Design-Build Entity making an assessment of schedule activity progress during a joint job-site walk through. Use of a Schedule Update Report to log this activity progress is recommended. Information to be recorded consists of activity actual start and finish dates, activity percents complete, and (if applicable) dollar amounts earned for each activity.

B. Once this information has been recorded, this data will be processed by computer by the Design-Build Entity, and will be used as the basis for the Design-Build Entity's monthly Application for Payment. Allowable billing amounts for each

activity will be the activity's budgeted cost amount times the updated percent complete.

C. Upon finalization of the computerized schedule update, the Design-Build Entity must submit the required schedule reports, as detailed in the "Required Reports" section, to the County for the processing of the Design-Build Entity's payment application.

D. In addition to these monthly updates, interim updates may be performed on the Design / Construction Schedule at the discretion of the County. While these interim updates will not be for Payment Application purposes, Design-Build Entity will be expected to contribute update data to the County as required to complete these updates.

E. Monthly update/status of electronic database must include recording of all Actual Start Dates and Actual Finish Dates and status of activities in progress.

F. Review of "Planned" versus "Actual" work force allocations and progress for the preceding month.

G. Review of revisions, added or deleted work and how those activities are being integrated into the Design-Build Entity's work plan.

H. Review of Design-Build Entity's interface and coordination with other work on the Kern County BHRS Psychiatric Health Facility site.

I. Review of all impacts to the work during the preceding month and to date, Design-Build Entity evaluation of those impacts and any recovery plans or remedial actions required to comply with the Contract schedule.

7.02 PROGRESS PAYMENTS

A. The submission and acceptance of progress updates and the cost reports calculating the value of work done for any given pay period for each activity, based on the percentage complete for that activity, will be the basis for monthly progress payments. The Design-Build Entity will be entitled to progress payments only as determined from the current updated and approved Schedule Cost Report generated as a result of the monthly progress update.

B. The monthly updating of the Design / Construction Schedule must be an integral part and basic element of the estimate upon which progress payments will be made. If, in the judgment of the County, the Design-Build Entity fails or refuses to provide information required to accomplish a complete Design / Construction Schedule Update or revision as specified hereinafter, the Design-Build Entity will be deemed to have not provided the required estimate upon which progress payments may be made, and will not be entitled to progress payments until it has furnished the information necessary for a complete Schedule Update to the satisfaction of the County.

PART 8 - SCHEDULE MODIFICATIONS

8.01 REVISIONS TO THE DESIGN / CONSTRUCTION SCHEDULE

A. If, as a result of the monthly Schedule Update, it appears the Design / Construction Schedule no longer represents the actual prosecution and progress of the work, the County may require the Design-Build Entity to submit a revision to the Design/Construction Schedule. Such revisions to the Schedule must not alter any of the Contract milestone constraints.

B. The Design-Build Entity may also request revisions to the Construction Schedule in the event the Design-Build Entity's planning for the work is revised. If revisions to the Construction Schedule are contemplated, the Design-Build Entity must notify the County in writing at least fourteen (14) calendar days prior to the next Schedule Update meeting. The Design-Build Entity must submit fragnets of the proposed changes along with a written narrative of the proposed changes. Such revisions to the Schedule must not alter any of the Kern County BHRS Psychiatric Health Facility Milestone dates. If accepted by the County, these fragnets will be incorporated into the Construction Schedule.

C. Updating the Design / Construction Schedule to reflect actual progress will not be considered a revision to the Design/Construction Schedule.

D. Schedule revision must be submitted utilizing a copy of the updated construction schedule as modified with proposed changes; a narrative explanation of the change(s); and a copy of a detailed comparison with the current updated schedule detailing all changes.

E. Upon acceptance of a revision, the revised current Design / Construction Schedule must be the basis for evaluating future status, impacts, and/or changes.

PART 9 - PROGRESS

9.01 SCHEDULE IMPACTS, SCHEDULE DELAYS, TIME EXTENSIONS

A. During the course of the Kern County BHRS Psychiatric Health Facility Project, it may be appropriate to revise the Schedule to incorporate impacts or delay issues into the Kern County BHRS Psychiatric Health Facility Schedule. If the Design-Build Entity feels it has encountered schedule impacts that it feels may warrant a time extension, it will present an Impacted Schedule to the County supporting his claim.

B. The procedure for incorporating impacts into the schedule is as follows:

1. Create a schedule activity (or activities) that represent the scope of the change or delay.

2. Assign durations and cost/manpower resources to these new activities.

3. Determine appropriate logic ties for these new activities. Assign predecessors and successors so that these activities can tie into the existing schedule activities. Every effort to mitigate the potential delay by either isolating the impact of the delay or planning "work-around" approaches to the work will be considered and incorporated where deemed effective.

4. These impact activities should be loaded into a copy of the updated schedule that immediately preceded the impact issue's time frame. For instance, if an impact issue occurs during mid-April, the new activities should be input into the March 31 (status date) update.

5. After the Schedule is recalculated with these impact activities in place, the affect they have on the Kern County BHRS Psychiatric Health Facility Milestones will determine if any time extension is merited.

C. The Impacted Schedule, along with the Time Impact Evaluation ("TIE") and other backup data describing the new schedule activities and logic ties which comprise the impact/delay issues, must be submitted to the County for review and approval. If approved, these impact / delay issues will become a permanent part of the Kern County BHRS Psychiatric Health Facility Schedule. The Design-Build Entity will not unilaterally make changes to the Kern County BHRS Psychiatric Health Facility Schedule to justify schedule impacts without the approval of the County.

D. Activity delays will not automatically mean that an extension of the Contract Time is warranted or due the Design-Build Entity. It is possible that an impact or delay will not affect existing critical activities or cause non-critical activities to become critical. An impact or delay may result in only absorbing a part of the available total float that may exist within an activity chain of the Network, thereby not causing any effect on the Contract Completion Date or other Contract Milestone dates.

E. Float is not for the exclusive use or benefit of either the County or the Design-Build Entity. Contract time extensions will be granted only to the extent that equitable time adjustments to the activity or activities affected by the impact or delay exceeds the total float along the critical path of activities at the time of the delay.

F. Impacts which may entitle Design-Build Entity to a Contract Time extension are provided in Document 00 7253 (General Conditions) Article 15.

G. The County will not have any obligation to consider any time extension request unless the requirements of Document 00 7253 (General Conditions) Article 15 and of this specification section are complied with. The County will not be responsible or liable to Design-Build Entity for any design or constructive acceleration due to failure of the County to grant time extensions under the Contract Documents should Design-Build Entity fail to comply with the submission requirements and the justification requirements of this Contract for time extension requests.

H. Design-Build Entity is responsible for all costs associated with the preparation of TIE's, and the process of incorporating TIE's into the current schedule update.

I. In the event the Design-Build Entity fails to submit a TIE prior to the completion of impacted work, the impact of delays will be limited to that portion of actual delay attributable to those legitimate impacts enumerated herein.

9.02 RECOVERY SCHEDULE

A. The Design-Build Entity must furnish such manpower, materials, facilities and equipment and will work such hours, including shift work and overtime, as may be necessary to insure the progress and completion of the work in accordance with the approved and currently updated Construction Schedule. If work falls behind schedule due to Design-Build Entity actions to the extent that any of the Milestone dates or completion dates will not be met, the Design-Build Entity agrees that he will, as necessary, and within 48 hours of written notice, take some or all of the following actions at no additional cost to the County, as required to substantially eliminate, in the judgment of the County, the backlog of work:

1. Increase manpower in quantities and crafts necessary;

2. Increase the number of working hours per shift, shifts per working day, working days per week, the amount of equipment, or any combination of the foregoing, and/or

3. Reschedule activities to achieve maximum practical concurrency of accomplishment.

B. The Design-Build Entity must also submit to the County a supplementary recovery schedule in the form of a fragnet which displays how the Design-Build Entity intends to reschedule activities to regain compliance with the construction schedule's milestone dates.

C. The obligations of this paragraph 9.02 supplement, and do not replace, County's rights and Design-Build Entity's obligations under Document 00 7253 (General Conditions) paragraph 11.02.

D. Failure of the Design-Build Entity to substantially comply with these requirements may be considered grounds for a determination by the County that the Design-Build Entity is failing to prosecute the work with sufficient diligence to ensure its completion within the Contract time. Upon making this determination, the County may pursue any of the remedies described in Document 00 5200 (Agreement) and Document 00 7253 (General Conditions).

END OF SECTION

SECTION 01 3232

PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section includes description of requirements and procedures for documenting progress of Construction of the Kern County BHRS Psychiatric Health Facility project.

1.03 SUBMITTALS

A. Refer to Section 01 3300 (Submittals) for submittal procedures.

B. Key Plan:

1. With each set of photographs, submit a key plan of the Kern County BHRS Psychiatric Health Facility site and building(s) with vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same label information as corresponding set of photographs.

C. Construction Photographs for Monthly Kern County BHRS Psychiatric Health Facility Progress Report:

1. See also Section 01 1102 (Summary of Work – Design-Build Contractor Services).

2. Submit one print each of a minimum of six (6) photographic views in each copy of the Monthly Kern County BHRS Psychiatric Health Facility Report.

3. Format: 8-by-10-inch smooth-surface matte prints on single-weight commercial-grade photographic paper, enclosed back to back in clear plastic sleeves that are punched for standard 3-ring binder.

4. Identification: On back of each print, provide an applied label or rubber-stamped impression with the following information:

a. Name of Kern County BHRS Psychiatric Health Facility.

b. Name of Design-Build Entity.

c. Date photograph was taken if not date stamped by camera. Kern County BHRS Psychiatric Health Facility, Bakersfield, California and Kern County Contract Number

d. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

e. Unique sequential identifier.

D. Digital Photographic Images:

1. Submit a complete set of digital image hard copy as a Kern County BHRS Psychiatric Health Facility Record Document. 8-by-10-inch smooth-surface matte prints on single-weight commercial-grade photographic paper, enclosed back to back in clear plastic sleeves that are punched for standard 3-ring binder. Identify as per Monthly Report identification requirements.

2. Submit a complete set of digital image electronic files as a Kern County BHRS Psychiatric Health Facility Record Document on CD-ROM. Identify electronic media with date photographs were taken. Provide index information necessary to link key plan as described in paragraph 1.03.B.1. Submit images that have same aspect ratio as the sensor, uncropped.

E. Digital Video Record:

1. Prior to start of construction, in the presence of the Owner's Representative, Design-Build Entity must video survey (digitally record) buildings and grounds affected by this Kern County BHRS Psychiatric Health Facility Project and submit itemized list of defects, e.g. broken glass, window screens, salvage items, paving, walks, etc. Design-Build Entity must make a copy of the Digital Video Disc (DVD) record for Design-Build Entity's use and deliver the original to the Owner for use at Kern County BHRS Psychiatric Health Facility closeout. At completion of Kern County BHRS Psychiatric Health Facility, defects not noted on that list or not verifiable on the original DVD must be corrected or replaced by Design-Build Entity at no cost to the Owner.

2. Submit two copies of each DVD with protective case within seven days of recording. Prevent accidental re-recording ("locked format").

3. On each copy, provide an applied label with the following information:

a. Name of Kern County BHRS Psychiatric Health Facility.

b. Name of Design-Build Entity.

c. Date digital recording was made.

d. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

e. Weather conditions at time of recording.

4. Transcript: Prepared on 8-1/2-by-11-inchpaper, punched and bound in heavy-duty, 3-ring, vinyl-covered binders. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as corresponding video. Include name of Kern County BHRS Psychiatric Health Facility and date of video on each page.

F. Periodic Construction Digital Images

1. See paragraph 1.03.B.1 for similar format and identification requirement. Photos must be distributed to Owner via shared web-based Kern County BHRS Psychiatric Health Facility management system or CD / DVD.

1.04 COORDINATION

A. If a professional photographer is utilized, cooperate with photographer, including access to Kern County BHRS Psychiatric Health Facility site and use of temporary facilities, including temporary lighting required to produce clear, well-lit photographs without obscuring shadows.

1.05 USAGE RIGHTS

A. General: Obtain and transfer copyright usage rights from photographer to the Owner for unlimited reproduction of photographic documentation.

PART 2 - PRODUCTS

2.01 PHOTOGRAPHIC MEDIA

A. Digital Images:

1. Provide images in uncompressed .TIFF format, produced by a digital camera with minimum sensor size of 4.0 megapixels, and at an image resolution of not less than 1600 by 1200 pixels.

B. Digital Video Format:

1. Provide high-quality color recording in DVD format.

2. Quality must be adequate to create photographic prints to be made from individual frames.

PART 3 - EXECUTION

3.01 CONSTRUCTION PHOTOGRAPHS

A. General:

1. Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.

2. Maintain key plan with each set of construction photographs that identifies each photographic location

B. Digital Images:

1. Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

2. Date and Time: Include date and time in filename for each image.

3. Field Office Images: Maintain one set of images on CD-ROM or DVD in the field office at Kern County BHRS Psychiatric Health Facility site, available at all times for reference. Identify images same as for those submitted to Construction Manager.

C. Periodic Construction Photographs: Take a minimum of 25 digital photographs weekly, with timing each month adjusted to coincide with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.

D. Owner-Directed Construction Photographs: From time to time, the Owner will instruct photographer about number and frequency of digital photographs and general directions of vantage points. Select actual vantage points and take photographs to show the status of construction and progress since last photographs were taken.

E. Aerial Photographs: Design-Build Entity will provide a minimum of three (3) aerial photographs upon final completion of the construction process. Aerial photographs must include the entire Site of the Work.

F. Emergency Situation / Accident Photographs: Accidents and / or emergency situations must be documented and shared with the Owner and investigative agencies.

G. Completion Construction Photographs: Take twenty-four (24) color photographs after date of Completion for submission as Kern County BHRS Psychiatric Health Facility Record Documents. Consult the Owner regarding desired vantage points.

3.02 DIGITAL TRAINING VIDEOS

A. Refer Section 01 7900 (Demonstration and Training).

END OF SECTION

SECTION 01 3300

SUBMITTALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section Includes:

1. Administrative and procedural requirements for submitting required submittals.

2. Procedures for Substitutions.

1.03 DEFINITIONS

A. Action Submittals:

1. Written and graphic information that requires Owner responsive action.

a. Action Submittals require Owner approval.

2. Within twenty (20) days after Notice to Proceed (NTP), Design-Build Entity shall provide Owner a comprehensive list of all Action Submittals for review and approval.

a. Items indicated to be for approval by Owner.

B. Informational Submittals:

1. Written information that does not require Owner's responsive action. Submittals may be rejected for not complying with requirements.

2. Within twenty 20 days after NTP, Design-Build Entity shall provide Owner a comprehensive list of all Informational Submittals for review and approval.

1.04 SUBMITTAL PROCEDURES

A. General:

1. Submittals may be forwarded entirely via electronic means. Owner has established the use of Primavera Contract Manager for the purposes of electronic communication. The Design-Build Entity must become well versed in the use of Primavera Contract Manager for purposes of communicating information via a network based system. Design-Build Entity will be responsible for uploading data into the Prolog system for all Design-Build Entity initiated communications, including, but not limited to drawings, submittals, RFI's, change requests, reports, certifications, guarantees, warranties, O&M manuals and commissioning documents.

2. Partial submittals are not acceptable, will be considered non-responsive, and will be returned without review.

3. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

4. The specific content and format requirements for the standard submittals are detailed herein and in the individual Specifications. The submittals will be submitted in no less than both hard copy and electronic form. The electronic form will be compiled in the most current form of Adobe Acrobat Pro, Release 10.0 or better. The electronic file will be bookmarked according to its Table of Contents, but will contain no less than the book marking identification in descending order of section, system, subsystem, equipment, component, etc., where applicable. The goal is to make the submittals both manageable and user friendly for Owner's use.

5. Drawing submittals must be in Computer Aided Design (CAD) format.

6. Prior to the implementation of the design work and prior to the formal submittal process, provide a list and cut sheets of all major mechanical and electrical equipment (to Owner for review and approval) along with the preliminary system calculations that together will drive the mechanical and electrical design and layout.

B. Coordination:

1. Coordinate preparation and processing of submittals with performance of design and construction activities.

2. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

3. Coordinate multidiscipline design phase submittals and construction documents prepared by Design-Build Entity's design professionals of record.

4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Owner reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Submittals Schedule:

1. Comply with requirements in Section 01 3200 (Progress Schedules and Reports) for submittal schedule requirements for scheduled performance of related construction activities.

2. Submit all Basis of Design submittals together for all disciplines and prior to the start of any demolition and/or construction activity. Subsequent Construction Document submittals can be submitted in phases prior to construction activity related to that phase.

D. Processing Time:

1. Allow enough time for submittal review, including time for resubmittals, as follows. Time for review will commence on receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

2. Initial Review: Allow at least twenty-one (21) days for initial review of each submittal. Allow an additional ten (10) days of time if coordination with subsequent submittals is required from the receipt of the subsequent submittal. Construction Manager will advise Design-Build Entity when a submittal being processed must be delayed for coordination.

3. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.

4. Resubmittal Review: Allow ten (10) working days for review of each resubmittal.

E. Identification:

1. Place a permanent label or title block on each submittal for identification.

2. Indicate name of firm or entity that prepared each submittal on label or title block.

3. Provide a space approximately 6 by 8 inches on label or beside title block to record Design-Build Entity's review and approval markings and action taken by Owner.

4. Include the following information on label for processing and recording action taken:

    a. Kern County BHRS Psychiatric Health Facility name.

    b. Date.

    c. Name and address of Owner.

    d. Name and address of Design-Build Entity.

    e. Name and address of subcontractor, including design professionals for design phase submittals.

    f. Name and address of supplier.

    g. Name of manufacturer.

    h. Submittal number or other unique identifier, including revision identifier.

        1) Submittal number must use Performance Specification Section number followed by a decimal point and then a sequential number (e.g., 06 1000.01). Resubmittals must include an alphabetic suffix after another decimal point (e.g., 06 1000.01.A).

    i. Number and title of appropriate Performance Specification Section.

    j. Drawing number and detail references, as appropriate.

    k. Location(s) where product is to be installed, as appropriate.

    l. Other necessary identification.

F. Deviations:

1. Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents and / or Bridging Documents (as applicable) on submittals. See also Section 01 1101 (Summary of Work – Design-Build Design Services) for specific design submittal requirements involving variances from Bridging Documents or previously approved design documents

G. Copies:

1. Action Submittals:

    a. General: Submit 6 Copies to Owner. Owner will return 2 Copies

b. Samples: Submit 3 full sets. Owner will return 2 sets.

c. Operation and Maintenance Manuals: Refer to Section 01 7823 (Operations and Maintenance Data).

d. Project Record Documents: Refer to Section 01 7839 (Project Record Documents).

e. Demonstration and Training: Refer to Section 01 7900 (Demonstration and Training).

2. Information Submittals:

a. General: Submit 3 Copies to Owner. Owner may return one (1) copy.

H. Additional Copies:

1. Unless additional copies are required for final submittal, or unless Owner observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

2. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.

I. Transmittal:

1. Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Owner will return submittals, without review, received from sources other than Design-Build Entity.

2. Transmittal Form: Owner-approved form indicating the following information:

a. Name.

b. Date.

c. Destination (To :).

d. Source (From :).

e. Names of subcontractor, manufacturer, and supplier.

f. Category and type of submittal.

g. Submittal purpose and description.

h. Specification Section number and title.

i. Drawing number and detail references, as appropriate.

j. Transmittal number, numbered consecutively.

k. Submittal and transmittal distribution record.

l. Remarks.

m. Signature of transmitter.

3. On an attached separate sheet, prepared on Design-Build Entity's letterhead, record relevant information, requests for data, revisions other than those requested by Owner on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.

4. For design-phase submittals, item 2.a is names of applicable Designers and item 2.h is Performance Specifications (Bridging Documents) number and title.

J. Resubmittals:

1. Make resubmittals in same form and number of copies as initial submittal.

2. Note date and content of previous submittal.

3. Note date and content of revision in label or title block and clearly indicate extent of revision.

4. Resubmit submittals until they are marked with Owner's approval notation.

K. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers and authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

L. Use for Construction: Use only final submittals with mark indicating approval by Owner.

M. Record Documents: Retain a final copy of all submittals as a Kern County BHRS Psychiatric Health Facility Record Document

1.05 SUBMITTAL CLASSIFICATIONS

A. General:

1. Submittals for the Kern County BHRS Psychiatric Health Facility are classified as follows:

a. Kern County BHRS Psychiatric Health Facility Proposal submittals. For requirements for these submittals, refer to Document 00 1119 (Request for Proposals) and other Proposal Requirements.

b. Basis of Design Submittals (Preliminary Design Phases).

c. Construction Documents –Design Phase Submittals.

d. Construction Submittals.

e. Kern County BHRS Psychiatric Health Facility Closeout Submittals.

f. Commissioning Submittals.

1.06 CONSTRUCTION DOCUMENT PHASE SUBMITTAL

A. General:

1. Submit these items during the period of preparation of the Construction Documents.

2. For the general requirements for these Submittals, refer to the Bridging Documents/Performance Criteria, and Section 01 1101 (Summary of Work – Design-Build Design Services).

3. Organize these submittals in accordance with the Bridging Documents / Performance Specification, using the same title numbers and titles.

4. Submit electronic files of submittals directly to extranet specifically established for Kern County BHRS Psychiatric Health Facility and hard copies of submittals to Owner.

5. Submittals in this Phase are as follows:

a. Action Submittals:

1) See Section 01 1101 (Summary of Work – Design-Building Design Services).

2) Basis of Design. In addition to the Requirements indicated in the Performance Criteria, provide annotated Performance Criteria and Concept drawings.

3) 65% Construction Documents.

4) 100% construction Documents.

b. Information Submittals: Manufacturer's Certificates, Product Certifications.

1.07 CONSTRUCTION PHASE SUBMITTALS

A. General:

1. Prepare and submit Submittals required for the Kern County BHRS Psychiatric Health Facility conditions and Design by individual Performance Specification Sections.

2. For the general requirements for these Submittals, refer to the Performance Criteria.

3. Submit submittals prior to fabrication, purchasing and installation.

4. Submit electronic submittals directly to extranet specifically established for Kern County BHRS Psychiatric Health Facility.

B. Action Submittals:

1. Action Submittals include Samples, Schedules, and Applications for Payment, Subcontracts List, and others as applicable to the Kern County BHRS Psychiatric Health Facility.

2. Mechanical / Electrical equipment and systems submittals for those systems to be commissioned for review by Commissioning Authority.

3. Items submitted as substitutions or as “equal” to listed manufacturer(s).

C. Informational Submittals:

1. Prepare and submit Informational Submittals required by Performance Specification Sections.

2. Informational Submittals Include Quality Assurance Submittals, Schedules, Applications for Payment, Insurance Certificates and Bonds, Construction Photographs and Videotapes, and others as applicable to the Kern County BHRS Psychiatric Health Facility.

3. Design-Build Entity’s subcontractor Design professionals of Record will review and stamp all construction submittals for conformance with the construction documents prepared and signed by the California Registered Design Professionals.

4. Shop drawings and equipment submittals not directly related to commissioning or required for review by commissioning authority.

5. Retain copies of all submittals at job site trailer.

6. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications must be signed by an officer or other individual authorized to sign documents on behalf of that entity.

7. Test and Inspection Reports: Comply with requirements specified in Section 01 4523 (Quality Requirements).

    a. Informational Submittals: Coordination Drawings, Qualification Data, Quality Assurance Certifications, Field Testing Reports, Compatibility Reports, and others as applicable to the Kern County BHRS Psychiatric Health Facility.

1.08 PROJECT CLOSEOUT SUBMITTALS

A. General: Comply with requirements specified in Section 01 7700 (Closeout Procedures), Section 01 7823 (Operations and Maintenance Data), Section 01 7839 (Project Record Documents), and Section 01 9100 (General Commissioning Requirements).

1.09 COMMISSIONING SUBMITTALS

A. General: Comply with all commissioning requirements.

1.10 REQUIREMENTS FOR EACH SUBMITTAL CATEGORY

A. Product Schedule or List:

1. As required in individual Performance Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

    a. Type of product. Include unique identifier for each product.

    b. Number and name of room or space.

    c. Location within room or space.

B. Product Data:

1. Collect information into a single submittal for each element of construction and type of product or equipment.

2. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.

3. Mark each copy of each submittal to show which products and options are applicable.

4. Include the following information, as applicable:

   a. Manufacturer's written recommendations.

   b. Manufacturer's product specifications.

   c. Manufacturer's installation instructions.

   d. Standard color charts.

   e. Manufacturer's catalog cuts.

   f. Wiring diagrams showing factory-installed wiring.

   g. Printed performance curves.

   h. Operational range diagrams.

   i. Mill reports.

   j. Standard product operation and maintenance manuals.

   k. Compliance with specified referenced standards.

   l. Testing by recognized testing agency.

   m. Application of testing agency labels and seals.

   n. Notation of coordination requirements.

5. Submit Product Data before or concurrent with Samples for Initial Selection.

C. Samples for Initial Selection:

1. Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

2. Number of Samples: Submit three full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Owner will return two submittals with options selected.

D. Manufacturer Certificates: Prepare written statements on manufacturer’s letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

E. Shop Drawings:

1. Prepare Kern County BHRS Psychiatric Health Facility specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

2. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

   a. Dimensions.

   b. Identification of products.

   c. Fabrication and installation drawings.

   d. Roughing-in and setting diagrams.

   e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.

   f. Shop work manufacturing instructions.

   g. Templates and patterns.

   h. Schedules.

   i. Design calculations.

   j. Compliance with specified standards.

   k. Notation of coordination requirements.

   l. Notation of dimensions established by field measurement.

   m. Relationship to adjoining construction clearly required.

   n. Seal and signature of professional engineer if specified.

   o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at minimum 8-1/2-inches by 11-inches but no larger than 30-inches by 40-inches.

F. Samples:

1. Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

2. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

3. Identification: Attach label on unexposed side of Samples that includes the following:

    a. Generic description of Sample.

    b. Product name and name of manufacturer.

    c. Sample source.

    d. Number and title of appropriate Performance Specification Section.

4. Disposal: Maintain sets of approved Samples at Project Site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

    a. If approved by Owner, certain Samples may be incorporated into the Work. Such Samples must be in an undamaged condition at time of use.

    b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Design-Build Entity.

5. Samples for Verification:

    a. Submit full-size units or Samples of size required, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    b. Number of Samples: Submit three sets of Samples. Owner will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Kern County BHRS Psychiatric Health Facility Record Sample.

1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

G. Design-Build Entity's Design and Construction Schedule: Comply with Section 01 3200 (Progress Schedules and Reports).

H. Submittals Schedule: Comply with Section 01 3200 (Progress Schedules and Reports).

I. Application for Payment: Comply with Section 01 2000 (Measurement and Payment).

J. Schedule of Values: Comply with Section 01 2000 (Measurement and Payment).

K. Subcontract List:

1. Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

2. Name, address, and telephone number of entity performing subcontract or supplying products.

3. Number and title of related Specification Section(s) covered by subcontract.

4. Drawing number and detail references, as appropriate, covered by subcontract.

5. See also Task #8 under Section 01 1102 (Summary of Work – Design-Build Contractor Services).

L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of project architects and owners, and other information specified.

M. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

N. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Kern County BHRS Psychiatric Health Facility Project.

O. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

P. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

Q. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

R. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

S. Research/Evaluation Reports:

1. Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Kern County BHRS Psychiatric Health Facility. Include the following information:

a. Name of evaluation organization.

b. Date of evaluation.

c. Time period when report is in effect.

d. Product and manufacturers' names.

e. Description of product.

f. Test procedures and results.

g. Limitations of use.

T. Schedule of Tests and Inspections: Comply with Section 01 4523 (Quality Requirements).

U. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with Performance Specifications in the Contract Documents.

V. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

W. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

X. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Section 01 7823 (Operations and Maintenance Data).

Y. Design Data: Prepare written and graphic information, including, but not limited to, performance and Design Requirements, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and Design Requirements and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

Z. Manufacturer's Instructions:

1. Prepare written or published information that documents manufacturer’s recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

    a. Preparation of substrates.

    b. Required substrate tolerances.

    c. Sequence of installation or erection.

    d. Required installation tolerances.

    e. Required adjustments.

    f. Recommendations for cleaning and protection.

AA. Manufacturer's Field Reports:

1. Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

    a. Name, address, and telephone number of factory-authorized service representative making report.

    b. Statement on condition of substrates and their acceptability for installation of product.

c. Statement that products at Kern County BHRS Psychiatric Health Facility site comply with requirements.

d. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

e. Results of operational and other tests and a statement of whether observed performance complies with requirements.

f. Statement whether conditions, products, and installation will affect warranty.

g. Other required items required in individual Performance Specification Sections.

BB. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

CC. Construction Photographs and Digital Recordings (DVD's): Comply with requirements specified in Section 01 3232 (Photographic Documentation).

DD. Regulatory Agency: Submit licenses, permits, certifications, and proof of fee payments for all regulatory agencies.

1.11 DESIGN-BUILD ENTITY REVIEW

A. General: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents (including where applicable Bridging Documents). Note corrections and field dimensions. Mark with approval stamp before submitting to Owner.

B. Approval Stamp:

1. Stamp each submittal with a uniform, approval stamp. Include Kern County BHRS Psychiatric Health Facility name and location, submittal number, Specification Section title and number, name of reviewer, date of Design-Build Entity's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

2. The Design-Build Entity's licensed design professional Designers must review and stamp all Construction submittals. Designers must review Construction submittals for conformance to final Construction Documents prepared by the registered design professionals of record for the Kern County BHRS Psychiatric Health Facility.

C. Design Phase Submittals: Review each submittal and check for coordination with other submittals of the same design phase and for conformance with approved design-submittals rom prior phases. Note all deviations as required in paragraph 1.04.F above.

1.12 OWNER'S ACTION

A. General: Where action is required by Owner, Owner will not review submittals that do not bear Design-Build Entity's approval stamp and will return them without action.

B. Action Submittals: Owner will review each submittal, make marks to indicate corrections or modifications required, and return it to the Design-Build Entity.

C. Informational Submittals: Owner will review each submittal and may return it to the Design-Build Entity stamped appropriately with comments.

PART 2 - PRODUCTS

2.01 PROGRESS SCHEDULE

A. Prepare and submit Progress Schedule of operations as required by Section 01 1102 Summary of Work Design-Build Contractor Services and Section 01 3200 Progress Schedules and Reports.

B. Relate Progress Schedule to entire Kern County BHRS Psychiatric Health Facility. Indicate dates for submission of required submittals.

C. Submit Schedule of Values with Progress Schedule. Refer to Section 01 2000 Measurement and Payment and Section 01 3200 (Progress Schedules and Reports) for additional cost breakdown requirements.

2.02 PRODUCT CERTIFICATIONS

A. Where specifically indicated by pertinent Specification Sections, submit proper certification by recognized producer or association. Certifications must attest to product's compliance with requirements of Contract Documents.

2.03 SHOP DRAWINGS

A. Submittals must be made in electronic and hard copy form (see also Part 1.03 herein) and include one reproducible transparency of each original and 6 prints of each transparency, name and location of Kern County BHRS Psychiatric Health Facility, name of Design-Build Entity, work order and Contract numbers and cross references to Contract documents. Number shop drawings consecutively. Make drawings legible and complete in every respect. Electronic drawing submittals must be in consistent AutoCAD format.

B. If Shop Drawings show variations from Contract requirements because of standard shop practice or other reason, make specific mention of such variations in letter of transmittal, as well as on drawings, in order that (if acceptable) suitable action may be taken for proper adjustment of Contract. Unless specific changes have been noted and accepted, no deviations from Contract Documents will be permitted.

C. Transparencies will be returned to Design-Build Entity for Design-Build Entity's reproduction and use. Owner will make prints for its own use.

2.04 PRODUCT DATA / MATERIAL LIST

A. Manufacturer's Standard Schematic Drawings:

1. Modify drawings to delete information which is not applicable to Kern County BHRS Psychiatric Health Facility.

2. Supplement standard information to provide additional information applicable to Kern County BHRS Psychiatric Health Facility.

B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data:

1. Clearly mark each copy to identify pertinent materials, products or models.

2. Show dimensions and clearances required.

3. Show performance characteristics and capacities.

4. Show wiring diagrams and controls.

5. Include calculations when applicable.

C. Material Safety Data Sheets (MSDS): Include for materials which require manufacturer's warnings and application instructions listed on MSDS provided by the product manufacturer.

2.05 SAMPLES

A. Physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged.

B. Where size of samples is not specified, office samples should be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of product or material, with integrally related parts and attachment devices.

2. After review, samples may be used in construction of Kern County BHRS Psychiatric Health Facility.

C. Field Samples and Mockups:

1. Erect at Kern County BHRS Psychiatric Health Facility site at location acceptable to Owner, unless otherwise approved.

2. Construct each sample or mockup complete, including work of all trades required in finished work.

3. Within twenty (20) days after NTP, Design-Build Entity shall provide Owner a comprehensive list of all Mockups to be completed at the Kern County BHRS Psychiatric Health Facility. Owner will review and approve this list.

2.06 SUBSTITUTIONS

A. Owner's written acceptance is required for implementation or utilization of any substitution.

1. Contract is based on materials, equipment and methods described in Bridging Documents and approved Construction Documents.

2. Do not use alternative materials, equipment or methods unless such substitution has been specifically accepted for this work by Owner.

3. Refer to Section 01 6000 (Product Requirements) for requirements and additional related information.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 3554

BUILDING INFORMATION MODELING (BIM) REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. The Building Information Modeling (BIM) guidelines outline Kern County's expectations for the Design-Build Entity's utilization of BIM in executing the Kern County BHRS Psychiatric Health Facility Project and with collaborating and coordinating with County's Kern County BHRS Psychiatric Health Facility Project delivery team and stakeholders.

B. BIM EXECUTION PLAN (BEP) - Within 20 days of Notice to Proceed (NTP) the Design-Build Entity must present its BEP demonstrating how it will meet the Contract requirements. The BEP must include, at a minimum, the following information:

1. Proposed BIM staff with resumes and references, for DBE's designer's and designated subcontractors.

2. Software selections.

3. Schedule of BIM activities.

4. Schedule of BIM submittal milestones during design and construction.

5. All submittals generated by BIM, organized by Work Packages.

6. Process proposed to utilize 3D visualization 'walk-thru' video in presentations to the Kern County BHRS Psychiatric Health Facility stakeholders (both local and remote) File folder structure.

7. File Naming Conventions (Nomenclature).

8. Hardware and Software for BIM Share Site.

9. BIM Data Security Protocol and Narrative.

10. Hardware and software for the BIM Work Room.

11. Responsibilities of DBE's BIM Staff to perform all required BIM functions.

12. Methodology for ensuring the validation of in-field installation compared to coordinated BIM.

13. Methodology for validating in-progress and the final As-Built Models.

C. The Bridging Architect will provide a LOD 100 / 200, design-phase model ("Design Model") to the Design-Build Entity for its baseline reference in development of the DBE's LOD 300 / 400 Federated Model.

D. The Design-Build Entity (DBE) must develop and submit for approval an LOD 300 / 400 Federated Model (Federated Model) utilizing Building Information Modeling (BIM) as defined by this Section. In implementing the BIM requirements, the DBE must:

1. Work with Owner's representative and the DBE's Subcontractors to develop the Federated Model throughout the Work of the Kern County BHRS Psychiatric Health Facility.

2. Submit a Level of Detail (LOD) 300 / 400 Federated Model to Owner's representative for review and approval as part of the DBE's submittals prior to start of construction.

a. Shop Drawings.

b. Approved Change Orders.

c. Fabrication, assembly and detailing.

d. Field Modifications.

e. Submit the Design Model and Federated Model to Owner's Representative for review and approval.

f. The Design Model and Federated Model will be located on a designated File Sharing System as defined by the DBE. Owner's representative will review and approve the Models at significant Kern County BHRS Psychiatric Health Facility milestones and defined upload schedules.

E. As-Built Model:

1. Provide a final "as-built" LOD 400 / 500 Federated Model to Owner's Project Manager as of the Kern County BHRS Psychiatric Health Facility Close-Out phase ("As-Built Model"). Model deliverables must include final, last revision, Design Models (native files) for reference. The Federated As-Built model must contain active links to all the appropriate Models that make up the Federated model. The folders and Native Files must be organized and the active links maintained for future modification.

2. Paragraph 2.07 below contains other As-Built Model requirements.

F. Geo-Reference Controls:

1. The Design Build Entity must establish geo-reference controls for all Models based on California County Plan, Zone 3, NAD83 (1983) feet coordinate systems and NAVD 88 vertical datum.

1.03 DEFINITIONS AND ACRONYMS

A. BIM: Building Information Modeling. The process of generating and managing building data (geometry, dimensions, nomenclature, element specifications, material, equipment type, etc.) during a defined life cycle.

B. COBie: – Construction Operations Business Information Exchange. Collected data throughout the Kern County BHRS Psychiatric Health Facility Project to include equipment lists, product data sheets, warranties, spare part lists, preventive maintenance schedules, and other pertinent information that Owner may require.

C. Model: The 3D virtual representation of the Kern County BHRS Psychiatric Health Facility Project and its Objects. The Model is generally an assemblage of several Models produced by various disciplines, each of which is comprised of numerous Objects.

D. Model Element: A portion of the BIM representing a component, system or assembly within a building or building site.

E. MEA: Model Element Author. The primary party who will develop the content of a specific Model Element to the LOD listed for a particular phase of the Kern County BHRS Psychiatric Health Facility.

F. As-Built Model: A Federated Model incorporating all construction phase modifications to the Construction Model. See 1.02.E above and 2.07 below.

G. BIM Manager: The individual responsible for managing the Design-Build Entity's (DBE) modeling and coordination process, including managing the Design-Build Entity's BIM staff and all other aspects of the DBE's BIM requirements.

H. BIMF: BIM Files.

I. Bid Model: The Federated Model established by Owner as part of the Criteria Documents.

J. Collaboration Model: The Federated Model used during the trade coordination phase. The model is comprised of design input from all major designers and integrated according to spatial relationships, design intent, and means and methods.

K. Criteria Architect Model: The Design and Federated Model established by County (Owner) as part of the Criteria Documents. This model may be relied upon as a reference only. This model is developed no further than LOD 200.

L. Facility Model: The 3D model that incorporates all major equipment and components that require service and maintenance.

M. Federated Model: The Federated Model combines different modeled elements or assemblies through the process of linking files from their native platforms, maintaining their native properties. It is a virtual representation of the entire Kern County BHRS Psychiatric Health Facility developed to a specified LOD. The Federated Model must consist of the primary disciplines for construction, for example, Civil, Architectural, Structural, Mechanical, Electrical, Fire Protection, and Special Equipment.

N. Linking Files: A process to externally reference a native file into the Federated Model.

O. MEPF: Mechanical, Electrical, Plumbing, and Fire Protection systems.

P. Native Model: A Model created in a specific CAD platform, i.e., Revit.

Q. Nomenclature: A system of principles, procedures and terms related to assignment of a location, object or property.

R. Owner Model: The final Federated model integrating the as-built model, collaboration model, and the facility model.

S. Proposal Model: The Federated Model developed by Design-Build Entity as the basis of their proposal.

T. Transferred Model: The Native Model(s) and/or Federated Model provided to Owner for Owner's agreed utilization.

U. Object: The term used to describe the 3D virtual representation of separate sub-parts of a Model such as doors, walls, equipment etc.

V. Room: Any space within the enclosing walls of the building.

W. Level of Development (LOD): Term, based on the AIA Document E 202 – 2008, used to describe the fullness and definitiveness of the Model; each Model can have a varying LOD depending on the phase of the Kern County BHRS Psychiatric Health Facility life-cycle, and agreed utilization of the Model.

1.04 FEDERATED MODEL

A. Intent: The Federated Model must be developed for design intent, engineering reference, trade coordination, spatial facilities placement, and for as-built reference and rectification. The Federated Model must be a Kern County BHRS Psychiatric Health Facility source for communication and collaboration throughout each phase of the Kern County BHRS Psychiatric Health Facility. At the completion of the Work, the Federated Model must be turned over to Owner. Owner will have exclusive rights to the model for their use:

1. As a baseline model for future modifications to the facility; and

2. As a source of data in operating and maintaining the facility.

3. Therefore, the model must be complete and contain all Linked files for future use.

B. Use: The Federated Model may vary in level of detail for individual elements, but at a minimum must include sufficient data to support use and analysis of:

1. Functional and visual representation of spaces.

2. Constructability review of DBE's documents.

3. Clash detection and correction of all major systems.

4. Construction scheduling.

5. Energy and sustainability.

6. Cost estimating.

7. As-built documentation and modeling..

8. Label and identify all major components and equipment.

C. Basis of Information for Modeling: The final Construction Documents (Drawings and Specifications) shall be derived using information from the Federated Model. If the Design Model or any or all of the Bridging Architect's models are available for use by the DBE in developing the Federated Model, such usage will be for reference only.

D. Changes to Federated Model: Any changes to the Federated Model, once Construction Documents have been approved, must be stored in Owner's defined File Storage System.

1.05 OMNICLASS CONSTRUCTION CLASSIFICATION

A. General: The OmniClass Construction Classification System (OCCS) is a classification system for the construction industry developed by the Construction Specification Institute (CSI). It builds upon MasterFormat for work results, UniFormat for elements and EPCI (Electronic product Information Cooperation) for structuring products. OmniClass is a reference library system that will serve as the foundation upon which information is transferred between the construction and operations phases.

B. OmniClass Assignment: The Design Build Entity, upon selection of OmniClass coding, must include, when appropriate, OmniClass classification in the list of property attributes that is assigned to the Objects.

1.06 COMMISSIONING AND CONSTRUCTION OPERATIONS BUSINESS INFORMATION EXCHANGE (COBie)

A. General: If commissioning activities and / or COBie data is required by other sections of these specifications, the Design Build Entity must comply with the requirements of those sections in addition to the requirements of this section.

B. COBie O&M data requirements: The extent of information and format of the COBie Data Sets, if required, must be provided in accordance with the COBie section. In addition, and in support of, the extent of Model and Object parametric data required by this section must be provided as described herein with modifications as follows:

1. The Model data must be formatted as required by the COBie data sets requirements.

2. The submittal of the Model data will be as scheduled by the COBie requirements.

3. COBie Data must be in an excel format and in accordance with COBie 2 standards.

1.07 LEVEL OF DEVELOPMENT (LOD)

A. General: Regardless of LOD, the model(s) must be capable of being presented in three dimensions, and will be an object-based parametric database system. Each enclosed space must be identified as a unique Room with associated parameters.

B. LOD 100: Programming level. Buildings and / or structures must be modeled as masses indicative of area, height, volume, spatial location, and orientation.

C. LOD 200: Planning level. Buildings and / or structures including major architectural, structural, mechanical, electrical, and plumbing objects must be modeled as generalized systems or assemblies with approximate quantities, approximate configuration, spatial location, and orientation.

D. LOD 300: Design level. Buildings and / or structures including all objects must be modeled as specific systems or assemblies with accurate quantities, recognizable configuration, spatial location, and orientation.

E. LOD 400: Construction level. Buildings and / or structures including all objects must be modeled as specific systems or assemblies with accurate quantities, recognizable configuration, spatial location, and orientation, with complete fabrication, assembly, and detailing information.

F. LOD 500: As-built level. Buildings and / or structures including all objects must be modeled as constructed systems or assemblies with accurate quantities, shape, spatial location, and orientation, with complete fabrication, assembly, and detailing information.

1.08 BIM STAFF

A. The DBE will provide qualified BIM staff to manage the BIM process and develop the required BIM Execution Plans (BEP). This staff will oversee development of all submittals generated from BIM data and manage the coordination process, including managing the information of the BIM Staff and subcontractor's responsible for creating models, analyzing "clashes" and resolving coordination issues.

1.09 BIM WORK ROOM

A. The DBE must provide a BIM Work Room sized to provide work space for BIM modelers and to function as a collaborative conference room for design reviews, presentations and BIM Coordination work sessions. The BIM Work Room must accommodate at least one representative of each trade subcontractor and the corresponding DBE design professional, in addition to three representatives from Owner and the DBE's BIM Staff.

B. Provide hardware to support BIM presentations and BIM Coordination work sessions.

C. Provide projectors and interactive viewing screens sufficient to support collaborative reviews of BIM models.

D. The DBE must provide web and voice conferencing capabilities on site for the duration of the Kern County BHRS Psychiatric Health Facility Project with allowance for a minimum of 15 concurrent participants.

1.10 BIM SHARE SITE / FILE STORAGE SYSTEM

A. County, through its BIM Coordinator, will define a BIM Share Site (also known as the File Storage System) to host all BIM files. Models on this shared site must be fully accessible online to all members of the Kern County BHRS Psychiatric Health Facility Team. The DBE's BIM Manager will assign site users and passwords, must submit updates to the site on agreed schedules, must coordinate and approve the BIM information that is updated into the shared site, monitor usage and ensure capacity and function of this system. The site will contain revision control capabilities and the DBE's BIM Manager must administer read/write rights and hierarchy. The DBE's BIM Manager will comply with all requests from Owner's BIM Coordinator.

1.11 BIM DATA SECURITY

A. The DBE must establish a data security protocol to prevent any possible data corruption, virus "infections" and data misuse or deliberate damage by users of the BIM Share Site. The DBE must establish adequate user access rights to prevent data loss or damage.

B. Submit a narrative description of the data security protocol to County's BIM Coordinator for acceptance as part of the final draft of the BIM Execution Plan.

PART 2 - PRODUCTS

2.01 SOFTWARE REQUIREMENTS

A. General: The Native Model(s) must be developed to include parametric components of major building and site elements as defined in this Section. All discipline Native Models must be linked to the Architectural Native Model.

B. Accuracy of the Models: The Federated Model and each of its Native Models must be developed to within a dimensional tolerance of a minimum of 1/4-inch plus or minus.

1. Imperial units. One (1) unit in the model equals 0'-1"; model granularity – models may vary in level of detail for individual elements within a model, but at a minimum, must include all features that would be included on a quarter inch (1/4" = 1'-0") scaled drawing. The 1/4" scale model requirement means that all of the following drawings are generated from content that is in the BIM.

2. BIM application(s) and software(s) for the Federated Model must:

   a. Use the current version of Autodesk® Navisworks software.

   b. For any additional electronic model information that is not supported by the Revit or the primary software solution approved by Project Manager, and for constructing 4D models, the DBE must utilize Navisworks software (Manage, Review, Simulate and Freedom) to create and utilize files.

3. The Native Model software must be as listed in the following matrix. The first software listed for each discipline is preferred. Where second or third software is listed, it is only acceptable if the discipline provides the Object Parametric Attributes as required by these specifications. The software must be fully object-based, parametric, database system, and must be the most current version available at the start of work on the Kern County BHRS Psychiatric Health Facility Project.

Suggested Native Model Software Matrix		
Discipline	**Native Model Software**	**Comments**
Architectural	Revit Architecture	
Fixtures, and Equipment	Revit Architecture	Applies to stationary items only
Structural	Revit Structure	
HVAC	Revit MEP AutoCAD MEP CAD-Duct	

Suggested Native Model Software Matrix		
Discipline	**Native Model Software**	**Comments**
Plumbing	Revit MEP AutoCAD MEP CAD-Pipe	
Fire Protection	AutoSPRINK v 7	
Electrical	Revit MEP AutoCAD MEP	
Security Electronics	Revit MEP AutoCAD MEP	
Civil	AutoCAD Civil 3D	
Landscape	Revit Architecture	

2.02 NOMENCLATURE

A. Object Identification: Every Object in the Model must have a Unique Identification (UID) parameter and a Common Name parameter attached to it in the Native Model.

B. Unique Identification: The UID must be readable by the user of the Native Model software without additional software applications. The UID may be in the form of alpha, numeric, or alpha-numeric.

C. If the UID form is alpha-numeric, it must be a consistent string format for all Objects, within its discipline, and must be readable by any commonly available database. The UID is an “Instance” parameter.

D. If the Native Model software is not a full object-based, parametric, database platform, such as some of the older 3D CAD programs, the UID must be attached to the Object manually, if necessary, so that it can be read by the user without additional software applications.

E. Common Name: In addition to the UID, each Object must have a Common Name parameter attached to it in the Native Model. The Common Name must be approved by Owner prior to modeling. Examples of a Common Name include such as: door, window, toilet, VAV Box, etc. Typically, the Common Name will be generated automatically by the software, but if not, it will be input manually in the Native Model. The Common Name is an Object “Type” parameter.

F. Object Parametric Attributes - The following attributes must be attached to each Object. Note: If a required attribute is not automatically generated by Native Model software, it will be manually imputed in the Native Model, or provided in an Excel or Access document that includes the UID.

1. Unique Identification.

2. Common Name.

3. Omni Code Classification.

4. Native Model Assembly Code.

5. Manufacturer (where applicable).

6. Model Number (where applicable).

G. Room Association: Every Object in the Model must be associated with either a Room or a Floor and must have an association “Instance” parameter attached to it in the Native Model. Any Object that will be visible in a Room of the completed facility must be associated with that specific Room. This includes all Objects regardless of responsible discipline; examples include without limitation: electrical switches and outlets, electrical switch gear and panel boards, plumbing equipment and fixtures, access panels to concealed Objects, cabinets, doors and frames, wainscot, light fixtures, HVAC supply and return grilles, fire sprinkler heads and valves, etc.

H. Floor Association: Any Object that will be concealed in a wall or interstitial space (but would be visible if the finish surface or item was non-existent) must be associated with the specific Floor level that it is within. This includes all Objects regardless of responsible discipline; examples include without limitation: electrical conduit, plumbing piping and valves, HVAC supply and return ducts, HVAC equipment, fire sprinkler lines and valves, etc.

I. Objects extending beyond Room boundaries: Floors, walls, and / or ceilings are sometimes modeled as objects that extend beyond individual Room boundaries. Where this occurs, the architectural discipline Native Model must be modeled as follows:

1. Floors: Structural floor Objects may extend beyond Room boundaries, however, finish flooring such as carpet, resilient flooring, etc., must be modeled as Objects, with extents contained within the Room boundaries, and with appropriate Room association.

2. Walls: Structural wall and non-structural partition Objects may extend beyond Room limits, however, the surface material such as gypsum wallboard, wall covering, etc., must be modeled as Objects, or scheduled in the Room Finish Schedule, with extents contained within the Room boundaries, and with appropriate Room association.

3. Ceilings: Structural ceiling Objects may extend beyond Room limits, however, finish surface material such as gypsum wallboard, acoustical ceiling tiles, etc., must be modeled as Objects, with extents contained within the Room boundaries, and with appropriate Room association.

2.03 SYSTEM DISCIPLINE MODELS

A. Civil Systems: The Civil Systems Model must be a sub-system model linked to the Architectural System Model. The Civil Systems Model must serve as the basis for project shared coordinates through which the position of building elements on the site will be coordinated. Provide model Objects of:

1. Topography: existing natural and/or graded contours, and new grades and finish contours.

2. Planting: existing major landscaped areas, existing trees to remain, new landscaped areas, new trees, and Irrigation lines over 2-inch diameter.

3. Surface Improvements: pavements, curbs and gutters, retaining walls, exterior non-building structures such as pools, shade structures, etc.

4. Storm Water and Sanitary Sewers: existing lines (over 3-inch diameter), boxes and structures within Kern County BHRS Psychiatric Health Facility area, all new lines, boxes and structures, and existing public lines, boxes and structures beyond the Kern County BHRS Psychiatric Health Facility Project area but serving as points of connection for the Design-Kern County BHRS Psychiatric Health Facility Project.

5. Utilities: existing domestic and fire water main and branch lines (2" and larger diameter) within Kern County BHRS Psychiatric Health Facility area, all new domestic and fire water lines, existing electrical overhead and underground lines within Kern County BHRS Psychiatric Health Facility area, all new electrical lines outside buildings, existing telephone and data lines within Kern County BHRS Psychiatric Health Facility area, all new telephone and data lines outside buildings, existing gas lines within Kern County BHRS Psychiatric Health Facility area, all new gas lines outside buildings.

6. Roads and Parking. All necessary roadways and parking lots or parking structures, including necessary intelligence to produce accurate plans, profiles and cross-sections

B. The Architectural Systems Model must be the primary model to which others are linked. Provide model Objects of:

1. Spaces: net square footage of all occupied spaces, gross constructed floor area, room names and numbers, and floor, base, wall, and ceiling finishes. NOTE: Model room names and numbers must match Owner's Architectural Program space names and numbers.

2. Exterior Walls and Curtain Walls: type and composition, height, length, and width, and thermal, acoustic, fire, and security ratings.

3. Partitions: type and composition, height, length, and width, and thermal, acoustic, fire, and security ratings.

4. Floors: type and material, thickness, and finishes with manufacturer's name and product numbers. Link floor structure to the Structural Systems Model.

5. Ceilings: type and composition, height, length, and width, and thermal, acoustic, fire, and security ratings.

6. Roof Coverings and Openings: configuration, drainage system, and penetrations for modeled building components.

7. Exterior Doors, Windows, and Louvers: and material, height, width, and thickness, thermal, acoustic, fire, and security rating, location, and hardware elements or group.

8. Interior Doors, Windows, and Louvers: type and material, height, width, and thickness, thermal, acoustic, fire, and security rating, location, and hardware elements or group.

9. Stairs and Ramps: stairs and railings, ramps and railings, and handrails and guardrails.

10. Elevators and Escalators: elevator cabs and doors, elevator hoist-way doors and trim, elevator machinery and equipment, escalator belts and railings, and escalator machinery and equipment.

11. Casework and Counters: type and material, height, width, and depth, location, and hardware.

12. Plumbing Fixtures: type and material, location, trim, and finishes. Link fixtures and trim to the Mechanical Systems Model.

13. HVAC Grills and Registers: type and material, location, trim, and finishes. Link fixtures and trim to the Mechanical Systems Model.

14. Electrical Fixtures and Equipment: type and material, bulb type and wattage, location, trim, and finishes. Link fixtures and trim to the Electrical Systems Model.

15. Miscellaneous Fittings: toilet partitions, toilet room accessories, grab bars, personal storage lockers, display cases, and other surface applied quasi-permanent items such as mirrors etc.

C. Structural Systems: The Structural Systems Model must be a sub-system model. Provide model Objects of:

1. Foundations and footings: type and configuration, and depth, length, and width.

2. Slab(s) on-grade: type and configuration, under-slab base and waterproofing, recesses, curbs, pads, closure pours, and major penetrations.

3. Basement Walls: type and composition, height, length, and width, and thermal, acoustic, fire, and security ratings.

4. Elevated Floors: columns and beams, primary and secondary framing members, bracing, connections, and framed, composite, and/or slab decks.

5. Roofs: columns and beams, primary and secondary framing members, bracing, connections, and framed, composite, and/or slab decks.

6. Joints: expansion and/or contraction, and seismic.

7. Stairs and Ramps: openings and framing, and railing supports.

8. Shafts and Pits: openings and framing, and railing supports.

9. Fireproofing: Fireproofing is not to be included in the BIM but clash detection studies must include definition of tolerances for conflict detection.

10. Color Code: color code structural steel from other elements.

D. Mechanical: The Mechanical Systems Model must be a sub-system model. Provide model Objects of:

1. Heating, Ventilating, and Air Conditioning: all heating, ventilating, air-conditioning, exhaust fans, and specialty equipment, air supply, return, ventilation and exhaust ducts, including space-consuming elbows and transitions, fire dampers with ratings, mechanical piping, and registers, diffusers, grills and hydronic baseboards. Coordinate and link fixtures and trim to the Architectural Systems Model.

2. Plumbing: all domestic plumbing piping and fixtures, floor and area drains, valves (regardless of pipe size) and related equipment.

3. Piping larger than 1.5-inch diameter must be modeled.

4. Roof Drainage: all piping and fixtures, and related equipment.

5. Piping larger than 1.5-inch diameter must be modeled.

6. Equipment Clearances: Clearances for major equipment and all M/E/P Equipment and Architecturally Significant Specialty Equipment, as model objects for conflict detection and maintenance access requirements.

7. Color Code: separate color code for each type element.

E. Electrical: The Electrical Systems Model must be a sub-system model. Provide model Objects of:

1. Interior Electrical Power and Lighting: all interior electrical components, lighting, receptacles, special and general-purpose power receptacles, lighting fixtures, panelboards and control systems, and conduit and cable trays.

2. Individual conduit larger than 1.5-inch diameter must be modeled.

3. Groups or clusters runs, and cable trays of conduit of all sizes must be modeled.

4. Exterior Building Lighting: all exterior electrical components, lighting, receptacles, special and general-purpose power receptacles, lighting fixtures, panelboards and control systems, and transformers, and utility connection and equipment.

5. Telephone, Data, Television, and Other Low Voltage: all interior low voltage components, outlets, receptacles, special and controls, fixtures, panelboards, equipment racks, and control systems, and conduit and cable trays.

6. Equipment Clearances: Clearances for major as model objects for conflict detection and maintenance access requirements.

7. Color Code: separate color code for each type element.

F. Fire Suppression: The Fire Suppression Systems Model must be a sub-system model. Provide model Objects of:

1. Fire Suppression System:

a. Valves and risers;

b. All main, branch, and drains lines;

c. Sprinkler heads, and fittings; and

d. Pumps.

2. Fire Alarms:

a. Alarm and notification devices; and

b. Detection systems.

3. Equipment Clearances: Clearances for major equipment as model objects for conflict detection and maintenance access requirements.

4. Color Code: separate color code for each type element.

G. Specialty Equipment: The Specialty Equipment Model must be a sub-system model. Specialty Equipment includes without limitation such specialties as: medical equipment and systems, security equipment and systems, conveyance equipment and systems, manufacturing equipment and systems, etc.

2.04 DEVELOPMENT AND SUBMITTAL OF BIM MODELS

A. The DBE must develop the Federated Model and its discipline systems Native Models in compliance with the Contract Documents and the following:

1. 100% of Design Development Drawings (DD).

2. 100% Construction Documentation including approved Kern County Backcheck;

3. Develop and submit all discipline systems Native Models concurrently. Qualified deferred approvals may be submitted separately.

4. Submit updated discipline systems Native Models complying with final shop drawing submittals.

2.05 COORDINATION WITH OTHER CONTRACTORS

A. DBE is responsible to coordinate its respective work with other contractor teams assigned to the Kern County BHRS Psychiatric Health Facility.

B. County's BIM Coordinator will assist the DBE and other contractors in coordinating the effort between the Kern County BHRS Psychiatric Health Facility participants.

2.06 UPDATING THE MODELS DURING CONSTRUCTION

A. The Federated Model must be routinely updated/revised to keep it current with construction activity. This must occur at a minimum on a monthly basis and uploaded to the File Storage System.

B. After commencement of construction, the DBE must:

1. Utilize coordinated Native Models for manufacturing and prefabrication.

2. Meet at Kern County BHRS Psychiatric Health Facility site with installer and representatives of manufacturers and fabricators who are involved in or affected by such Work prior to installation of any Work which requires coordination and interfacing with other Work, and review fully coordinated BIM, progress of other Work and preparations for particular Work under consideration.

3. Submit the As Built BIM revisions by posting them on a Share Site within 24 hours of each update or revision.

2.07 SUBMITTAL OF FINAL AS-BUILT MODELS

A. Refer to Section 01 3300 (Submittals) for submittal procedures.

B. The final, approved updated and revised LOD 400 / 500 Federated Model and all its discipline systems Native Models ("As-Built Model") must be submitted to Owner as part of the close-out submittals.

C. The As-Built Federated Model and all its discipline systems Native Models must be:

1. Editable for future expansion or remodel projects.

2. Functional for use with 3-D Facilities Operations & Maintenance

3. Organized and properly filed in an equivalent Document Control System for archival and reference.

2.08 SUBMITTAL OF OPERATIONS AND MAINTENANCE (O&M) DOCUMENTS

A. Refer to Section 01 3300 (Submittals) for submittal procedures.

B. General: Section 01 7823 (Operations and Maintenance Data) also governs the work of this paragraph, with additional requirements contained herein.

C. Electronic O&M Documents: In addition to the submission of hard copy (paper) documents required by Section 01 3300 (Submittals), the DBE must provide all required O&M documents in individual Portable Document Format (PDF) files. The O&M documents must include at a minimum:

1. Object Identification: Unique ID number, and Common Name.

2. Manual: Product data, installation, maintenance, and operating instructions.

3. Shop Drawings: Item data, installation, and maintenance instructions.

4. Warranty: Manufacturer's warranty, Subcontractor's warranty.

5. Training: special instructions for maintenance work.

D. Organization of O&M Documents: The documents must be organized to match the As-Built Federated Model Objects.

1. Common Name: Each O&M document must be assigned a PDF file name that corresponds to the Object's Common Name.

2. Individual Documents: O&M documents must be organized and submitted as individual documents, not as parts of a larger group document. For example: each Object with a "type" parameter Common Name of "Toilet" must be submitted as an individual document, not grouped with other plumbing fixtures.

3. Quality PDFs: All PDF documents must be high quality, clean, straight, high contrast documents. Documents must be created directly from the origin software or document. Copies of copies are not acceptable. Scanned documents are not acceptable unless directly created documents are not available. If scanning is required the resultant PDF quality must meet the quality criteria described herein.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 4100

REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section includes:

1. Regulatory requirements applicable to Contract Documents.

2. Required provisions under Local Agency Disputes Act.

3. Required references under Federal Law.

1.03 GENERAL

A. Compliance with Laws:

1. Conform to all applicable codes, laws, ordinances, rules and regulations, which shall have full force and effect as though printed in full in these Specifications. Codes, laws, ordinances, rules, regulations and ordinances ("Regulatory Requirements") are not furnished to Design-Build Entity, because Design-Build Entity is assumed to be familiar with these requirements.

2. Any listing of Regulatory Requirements for hazardous waste abatement Work in the Contract Documents is supplied to Design-Build Entity as a courtesy and shall not limit Design-Build Entity's responsibility for complying with all applicable Regulatory Requirements having application to the Work. Where conflict among the Regulatory Requirements or with these Specifications occurs, the most stringent requirements shall be used.

3. Specific reference in the Specifications to codes and regulations or requirements of regulatory agencies shall mean the latest printed edition of each adopted by the regulatory agency in effect at the time Design-Build Entity executes Document 00 5200 (Agreement), except as may be otherwise specifically stated in the Contract Documents.

B. Precedence:

1. Where specified requirements differ from Regulatory Requirements, the more stringent requirements shall take precedence. Where Drawings or Specifications require or describe products or execution of better quality, higher standard or greater size than required by Regulatory Requirements, then Drawings and Specifications shall take precedence so long as such increase is legal. Where no requirements are identified on Drawings or in Specifications, comply with all Regulatory Requirements of governing authorities having jurisdiction.

2. Should any conditions develop not covered by the Contract Documents wherein the finished Work will not comply with current codes, a Change Order detailing and specifying the required Work shall be submitted to and approved by Owner before proceeding with the Work.

1.04 REGULATORY REQUIREMENTS

A. Applicable Codes: Codes that apply to Contract Documents include all Codes applicable to construction are identified in the Bridging Documents.

B. Applicable Laws, Statutes, Ordinances, Rules, and Regulations:

1. During prosecution of Work to be done under Contract Documents, Design-Build Entity shall comply with applicable laws, ordinances, rules and regulations, including, but not limited to, the following:

a. Federal:

1) Americans With Disabilities Act of 1990.

2) 29 CFR, Section 1910.1001, Asbestos.

3) 40 CFR, Subpart M, National Emission Standards for Asbestos.

4) Executive Order 11246.

5) Federal Endangered Species Act.

6) Clean Water Act .

b. State of California:

1) California Code of Regulations, Titles 5, 8, 15, 17, 19, 21, 22, 24 and 25.

2) California Public Contract Code.

3) California Health and Safety Code.

4) California Government Code.

5) California Labor Code.

6) California Civil Code.

7) California Code of Civil Procedure.

8) CPUC General Order 95, Rules for Overhead Electric Line Construction.

9) CPUC General Order 128, Rules for Construction of Underground Electric Supply and Communications Systems.

10) Cal / OSHA.

11) OSHA: Hazard Communications Standards.

12) California Endangered Species Act.

13) Water Code.

14) Fish and Game Codes.

15) State Administrative Manual.

c. State of California Agencies:

1) State and Consumer Services Agency.

2) Department of Fish and Game.

3) All Air Quality Management Districts with jurisdiction.

4) All Regional Water Quality Control Boards with jurisdiction.

d. All Local Agencies with jurisdiction (cities, counties, fire departments)

C. Change Orders and Claims:

1. The California Public Contract Code, including but not limited to Section 7105(d)(2), and the California Government Code Section 930.2 et seq., apply to all contract procedures for changes, time extensions, change orders (time or compensation) and claims. Federal law (*U.S. v. Holpuch* 326 U.S. 234) shall supplement California law on the enforceability of these requirements.

2. Any change, waiver, or omission to implement contract change order and claim procedures shall have no legal effect unless expressly permitted in a fully executed change order approved by Design-Build Entity and Owner and approved as to form by their respective legal counsel.

D. Required Provisions on Contract Claim Resolution:

1. The California Public Contract Code specifies required provisions on resolving contract claims less than $375,000, which are set forth below, and constitute a part of this Contract.

2. For the purposes of this section, “Claim” means a separate demand by Design-Build Entity of $375,000 or less for (1) a time extension, (2) payment or money or damages arising from Work done by or on behalf of Design-Build Entity arising under the Contract Documents and payment of which is not otherwise expressly provided for or the Claimant is not otherwise entitled to, or (3) an amount the payment of which is disputed by Owner. In order to qualify as a Claim, the written demand must state that it is a Claim submitted under paragraph 12 of Document 00 7253 (General Conditions) and be submitted in compliance with all requirements of Document 00 7253 (General Conditions), Article 12. Separate Claims which total more than $375,000 do not qualify as a “separate demand of $375,000 or less,” as referenced above, and are not subject to this section.

3. A voucher, invoice, payment application, or other routine or authorized form of request for payment is not a Claim for purposes of this section. If such request is disputed as to liability or amount, then the disputed portion of the submission may be converted to a Claim under this section by submitting a separate claim in compliance with Contract Documents claim submission requirements.

4. Caution. This section does not apply to tort claims and nothing in this section is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 and Chapter 2 of Part 3 of Division 3.6 of Title 1 of the California Government Code.

5. Procedure:

a. The Claim must be in writing, submitted in compliance with all requirements of Document 00 7253 (General Conditions), Article 12, including, but not limited to, the time prescribed by and including the documents necessary to substantiate the Claim, pursuant to Document 00 7253 (General Conditions), Article 12. Claims must be filed on or before the day of final payment. Nothing in this section is intended to extend the time limit or supersede notice requirements for the filing of claims as set forth in Document 00 7253 (General Conditions), Article 12 or elsewhere in the Contract Documents.

b. For Claims of fifty thousand dollars ($50,000) or less, Owner shall respond in writing within forty-five (45) days of receipt of the Claim, or Owner may request in writing within thirty (30) days of receipt of the Claim, any additional documentation supporting the Claim or relating to any defenses or claims Owner may have against Claimant. If additional information is thereafter required, it shall be requested and provided in accordance with this section upon mutual agreement of Owner and Claimant. Owner's written response to the Claim, as further documented, shall be submitted to Claimant within fifteen (15) days after receipt of further documentation or within a period of time no greater than taken by Claimant in producing the additional information, whichever is greater.

c. For Claims over Fifty Thousand Dollars ($50,000) and less than or equal to $375,000: Owner shall respond in writing within sixty (60) days of receipt of the Claim, or Owner may request in writing within thirty (30) days of receipt of the Claim, any additional documentation supporting the Claim or relating to any defenses or claims Owner may have against Claimant. If additional information is thereafter required, it shall be requested and provided in accordance with this section, upon mutual agreement of Owner and Claimant; Owner's written response to the Claim, as further documented, shall be submitted to Claimant within thirty (30) days after receipt of further documentation or within a period of time no greater than taken by Claimant in producing the additional information, whichever is greater.

d. Meet and Confer: If Claimant disputes Owner's written response, or Owner fails to respond within the time prescribed above, Claimant shall notify Owner, in writing, either within fifteen (15) days of receipt of Owner's response or within fifteen (15) days of Owner's failure to timely respond, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon demand Owner will schedule a meet and confer conference within thirty (30) days for settlement of the dispute.

e. Following the meet and confer conference, if the Claim or any portion remains in dispute, Claimant may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the California Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time Claimant submits its written claim as set forth herein, until the time that Claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

E. Compliance with Americans with Disabilities Act:

1. Design-Build Entity acknowledges that, pursuant to the Americans with Disabilities Act (ADA), programs, services and other activities provided by a public entity to the public, whether directly or through a Design-Build Entity, must be accessible to the disabled public. Design-Build Entity shall provide the services specified in the Contract Documents in a manner that complies with the ADA and any and all other applicable federal, state and local disability rights legislation. Design-Build Entity agrees not to discriminate against disabled persons in the provision of services, benefits or activities provided under the Contract Documents and further agrees that any violation of this prohibition on the part of Design-Build Entity, its employees, agents or assigns shall constitute a material breach of the Contract Documents.

F. Compliance with IRCA:

1. Design-Build Entity acknowledges that Design-Build Entity, and all subcontractors hired by Design-Build Entity to perform services under this Agreement, are aware of and understand the Immigration Reform and Control Act ("IRCA"). Design-Build Entity is and shall remain in compliance with the IRCA and shall ensure that any subcontractors hired by Design-Build Entity to perform services under this Agreement are in compliance with the IRCA. In addition, Design-Build Entity agrees to indemnify, defend and hold harmless Owner, its agents, officers and employees, from any liability, damages or causes of action arising out of or relating to any claims that Design-Build Entity's employees, or employees of any subcontractor hired by Design-Build Entity, are not authorized to work in the United States for Design-Build Entity or its subcontractor and / or any other claims based upon alleged IRCA violations committed by Design-Build Entity or Design-Build Entity's subcontractors.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 4200

REFERENCES AND DEFINITIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section Includes:

1. Reference standards, abbreviations, symbols, and definitions used in Contract Documents.

2. Full titles are given in this Section for standards cited in other Sections of Specifications.

1.03 REFERENCE TO STANDARDS AND SPECIFICATIONS OF TECHNICAL SOCIETIES, REPORTING AND RESOLVING DISCREPANCIES

A. References:

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code, or laws or regulations in effect at the time Design-Build Entity executes Document 00 5200 (Agreement), except as may be otherwise specifically stated in the Contract Documents.

2. If during the performance of the Work, Design-Build Entity discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such law or regulation applicable to the performance of the Work or of any such standard, specification, manual, or code or of any instruction of any supplier, Design-Build Entity shall report it in writing at once to Owner's Representative and Architect/Engineer, and Design-Build Entity shall not proceed with the Work affected thereby until consent to do so is given by Owner.

B. Precedence:

1. Except as otherwise specifically stated in the Contract Documents or as may be provided by Change Order, CCD, or Supplemental Instruction, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

   a. The provisions of any such standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

   b. The provisions of any such laws or regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such law or regulation).

2. No provision of any such standard, specification, manual, code, or instruction shall be effective to change the duties and responsibilities of Owner, Owner's Representative, Architect / Engineer or Design-Build Entity, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents, nor shall it be effective to assign to Owner, Architect / Engineer, or any of their consultants, agents, representatives or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

C. Referenced Grades, Classes, and Types:

1. Where an alternative or optional grade, class, or type of product or execution is included in a reference but is not identified in Drawings or in Specifications, provide the highest, best, and greatest of the alternatives or options for the intended use and prevailing conditions.

D. Edition Date of References:

1. When an edition or effective date of a reference is not given, it shall be understood to be the current edition or latest revision published as of the date Design-Build Entity executes Document 00 5200 (Agreement).

2. All amendments, changes, errata and supplements as of the effective date shall be included.

E. ASTM and ANSI References: Specifications and Standards of the American Society for Testing and Materials (ASTM) and the American National Standards Institute (ANSI) are identified in the Drawings and Specifications by abbreviation and number only and may not be further identified by title, date, revision, or amendment. It is presumed that Design-Build Entity is familiar with and has access to these nationally- and industry-recognized specifications and standards.

1.04 DEFINITIONS

A. Meaning of Words and Phrases. Wherever any of the words or phrases defined below, or a pronoun used in place thereof, is used in any part of the Contract Documents, it shall have the meaning here set forth. Where abbreviations and symbols are used, such abbreviations and symbols shall be given their common meaning in the construction industry. In the Contract Documents, the neuter gender includes the feminine and masculine, and the singular number includes the plural.

B. While Owner has made an effort to identify all defined terms with initial caps, the following definitions shall apply regardless of case unless the context otherwise requires:

1. Addenda: Written or graphic instruments issued prior to Design-Build Entity's execution of Document 00 5200 (Agreement), which clarify, correct, or change the Request for Proposal requirements or the Contract Documents. Addenda shall not include the minutes of any Pre-Proposal Conference and/or Site Visit unless otherwise expressly indicated.

2. Agreement (Document 00 5200): Agreement is the basic Contract Document that binds the parties to construction Work. Agreement defines relationships and obligations between Owner and Design-Build Entity and by reference incorporates Conditions of Contract, Bridging Documents, final Drawings, and final Specifications and contains Addenda and all Modifications subsequent to execution of Contract Documents.

3. Alternate: Work element identified as such in Proposal which, shall be added to or deducted from Work, if accepted by Owner as provided in Contract Documents. Excludes Enhancement (if that term is used).

4. Application for Payment: Written application for monthly or periodic progress or final payment made by Design-Build Entity complying with the Contract Documents.

5. Approved Equal: Approved in writing by Owner as being of equivalent quality, utility and appearance.

6. Architect / Engineer: Bridging Architect.

7. Asbestos: Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by OSHA or Cal/OSHA.

8. Bid: Proposal

9. Bidder: Proposer.

10. Board: The governing body of the Owner.

11. Bridging Architect. A person (or that person's firm) holding a valid California State Architect's or Engineer's license that prepared some or all of the Bridging Documents, and represents the Owner in the administration of certain aspects of Contract Documents. Bridging Architect may be an employee of or an independent consultant to Owner. When Bridging Architect is referred to within the Contract Documents and not an employee of Owner, Bridging Architect shall be construed to include employees, consultants and subconsultants of Bridging Architect. When Bridging Architect is an employee of Owner, his or her authorized representatives on the Project will be included under the term Bridging Architect. If Bridging Architect is an employee of Owner, Bridging Architect is the beneficiary of all Design-Build Entity obligations to Owner, including without limitation, all releases and indemnities. Bridging Architect may also be referred to as Architect/Engineer, Architect or Engineer.

12. Bridging Documents: The Performance Criteria, Concept Drawings and other items included, referenced or described in Document 00 5201 (Bridging Documents).

13. Business Day: Any Day other than Saturday, Sunday, and the following days that have been designated as holidays by Owner. If a holiday falls on a Saturday, the preceding Friday will be the holiday. If a holiday falls on a Sunday, the following Monday will be the holiday.

    a. New Year's Day, January 1;

    b. Martin Luther King Jr.'s Birthday, third Monday in January;

    c. Lincoln's Birthday, February 12;

    d. Presidents' Day, third Monday in February;

    e. Memorial Day, last Monday in May;

    f. Independence Day, July 4;

    g. Labor Day, first Monday in September;

    h. Veterans' Day, November 11;

    i. Thanksgiving Day, as designated by the President;

    j. The Day following Thanksgiving Day;

    k. Christmas Day, December 25; and

    l. Each day appointed by the Governor of California and formally recognized by the Board as a day of mourning, thanksgiving, or special observance.

14. By Owner: Work that will be performed by Owner or its agents at the Owner's expense.

15. By Others: Work that is outside scope of Work to be performed by Design-Build Entity under this Contract, which will be performed by Owner, other contractors, or other means.

16. Change Order: A written instrument prepared by Owner and signed by Owner and Design-Build Entity, stating their agreement upon all of the following:

    a. a change in the Work;

    b. the amount of the adjustment in the Contract Sum, if any; and

    c. the amount of the adjustment in the Contract Time, if any.

17. Change Proposal Request ("CPR"): Contractor-initiated change order document. (if used)

18. City: The City in which the Project is located or otherwise has jurisdiction over some element of the Project.

19. Code Inspector: A local or state agency responsible for the enforcement of applicable codes and regulations.

20. Concealed: Work not exposed to view in the finished Work, including within or behind various construction elements.

21. Construction Change Directive ("CCD"): A written order prepared and signed by Owner, directing a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum or Contract Time, or both.

22. Construction Documents: Final Drawings and Specifications. See Section 01 1101 (Summary of Work – Design-Build Design Services).

23. Construction Manager: If used elsewhere in the Contract Documents, the person or entity so identified in the Agreement or otherwise in writing by Owner, with such rights and responsibilities as may be set forth in Contract Documents. The term Construction Manager shall be construed to include employees of Construction Manager and/or employees that Construction Manager supervises. When the designated Construction Manager is an employee of Owner, his or her authorized representatives on the Project will be included under the term Construction Manager. If Construction Manager is an employee of Owner Construction Manager is the beneficiary of all Design-Build Entity obligations to Owner, including without limitation, all releases and indemnities.

24. Contract Amount: a change order price, line item price, Contract Sum, or other price assigned to a scope of work.

25. Contract Conditions or Conditions of the Contract: Consists of two parts: General Conditions and Supplementary Conditions.

    a. General Conditions are general clauses that are common to Owner design-build contracts, including Document 00 7253 (General Conditions).

    b. Supplementary Conditions modify or supplement General Conditions to meet specific requirements for Contract Documents, and are Documents generally numbered 00 7300 to 00 7399, including Documents 00 7316 (Supplemental General Conditions – Insurance and Indemnification) and (if used) 00 7319 (Supplemental General Conditions – Hazardous Materials).

26. Contract Documents and Contract: Contract Documents and Contract shall consist of the documents identified as the Contract Documents in the Agreement, plus all changes, Addenda, and modifications thereto.

27. Contract Modification: Either:

    a. a written amendment to Contract signed by Design-Build Entity and Owner; or

    b. a Change Order; or

    c. a Construction Change Directive; or

    d. a written directive for a minor change in the Work issued by Owner.

28. Contract Sum: The sum stated in the Agreement and, including authorized adjustments, the total amount payable by Owner to Design-Build Entity for performance of the Work and the Contract Documents. The Contract Sum is also sometimes referred to as the Contract Price or the Contract Amount.

29. Contract Time: The number or numbers of Days or the dates stated in the Agreement to achieve Substantial Completion of the Work or designated Milestones; and/or to achieve Final Completion of the Work so that it is ready for final payment and is accepted.

30. Contractor: Design-Build Entity.

31. Design-Build Entity (“DBE”). The person or entity identified as such in the Agreement and referred to throughout the Contract Documents as if singular in number and neutral in gender. The term “Design-Build Entity” means the Design-Build Entity or its authorized representative. Also referred to as “Design Builder.”

32. Design-Build Entity’s Employees: Persons engaged in execution of Work under Contract as direct employees of Design-Build Entity, as Subcontractors, or as employees of Subcontractors.

33. Designers: The qualified, licensed architects, engineers and other design professionals retained or employed by Contractor or a Subcontractor (of any tier) to furnish design services required by Section 01 1101 (Summary of Work – Design-Build Design Services) and other provisions of Contract Documents.

34. County: The county in which the Project is located.

35. Day: One calendar day of 24 hours measured from midnight to the next midnight, unless the word “day” is specifically modified to the contrary.

36. Defective: An adjective which, when modifying the word “Work,” refers to Work that is unsatisfactory or unsuited for the use intended, faulty, or deficient, that does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents (including but not limited to approval of Samples and “or equal” items), or has been damaged prior to final payment (unless responsibility for the protection thereof has been assumed by Owner). Unapproved substitutions are defective. Owner is the judge of whether Work is Defective.

37. DOF: California Department of Finance, or successor

38. Drawings: The graphic and pictorial portions of Contract Documents, wherever located and whenever issued, including without limitation prepared by Contractor or its Designers showing the final design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams. However, unless the context clearly requires otherwise, Drawings do not include any Bridging Documents.

39. Enhancement: Work identified as such in the Proposal which is added to or deducted from the Work in the base Proposal as indicated in the Proposal form.

40. Equal: Equal in opinion of Owner. Burden of proof of equality is responsibility of Design-Build Entity.

41. Exposed: Work exposed to view in the finished Work, including behind louvers, grilles, registers and various other construction elements.

42. Final Acceptance or Final Completion: Owner’s acceptance of the Work as satisfactorily completed in accordance with Contract Documents. Requirements for Final Acceptance/Final Completion include, but are not limited to:

    a. Final cleaning is completed.

    b. All systems having been tested and accepted as having met requirements of Contract Documents.

c. All required instructions and training sessions having been given by Design-Build Entity.

d. All Project Record Documents having been submitted by Design-Build Entity, reviewed by Owner, and accepted by Owner.

e. All punch list Work, as directed by Owner, having been completed by Design-Build Entity.

f. Generally all Work, except Design-Build Entity maintenance after Final Acceptance/Final Completion, having been completed to satisfaction of Owner.

43. Force Account: Work directed to be performed without prior agreement as to lump sum cost thereof, and which is to be billed at cost for labor, materials, equipment, taxes, and other costs, plus a specified percentage for overhead and profit.

44. Furnish: Supply only, do not install.

45. Indicated: Shown or noted on the Drawings.

46. IOR: Inspector of Record engaged by Owner.

47. Install: Install or apply only, do not furnish.

48. Kern County BHRS Psychiatric Health Facility: Project.

49. Latent: Not apparent by reasonable inspection, including but not limited to, the inspections and research required as a condition to proposing or performing construction work under Document 00 7253 (General Conditions).

50. Law: Unless otherwise limited, all applicable laws including without limitation all federal, state, and local laws, statutes, standards, rules, regulations, ordinances, and judicial and administrative decisions.

51. Material: This word shall be construed to embrace machinery, manufactured articles, materials of construction (fabricated or otherwise), and any other classes of material to be furnished in connection with Contract, except where a more limited meaning is indicated by context.

52. Milestone: A principal event specified in Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all Work.

53. Modification: Same as Contract Modification.

54. Not in Contract or “NIC”: Work that is outside the scope of Work to be performed by Design-Build Entity under Contract Documents.

55. Notice of Completion: Shall have the meaning provided in California Civil Code §3093, and any successor statute.

56. Off Site: Outside geographical location of the Project.

57. Owner: Owner is defined in Document 00 5200 (Agreement).

58. Owner-Furnished, Design-Build Entity Installed: Items furnished by Owner at its cost for installation by Design-Build Entity at its cost under Contract Documents.

59. Owner's Representative(s): See Document 00 5200 (Agreement).

60. Partial Utilization: Use by Owner of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all of the Work.

61. PCBs: Polychlorinated biphenyls.

62. Phase: A specified portion of the Work (if any) specifically identified as a Phase in Document 00 5200 (Agreement) or Document 01 1100 (Summary of Work).

63. Product Data: That information (brochures, catalog sheets, manufacturer's cut sheets, etc.) supplied by vendors having technical and commercial characteristics of the supplied equipment or materials and accompanying commercial terms such as warranties, instructions, and manuals.

64. Proposal: The offer or proposal of the Proposer submitted on the prescribed form(s) setting forth the prices for the Work to be performed.

65. Proposer: One who submits a Proposal.

66. Proposal Documents: All documents comprising the Project Manual (including all documents and Specification Sections listed in Document 00 0110 (Table of Contents), including documents supplied for proposal purposes only and Contract Documents (excluding Drawings and Specifications).

67. Progress Report: A periodic report submitted by Design-Build Entity to Owner with progress payment invoices accompanying progress schedule. See Document 00 7253 (General Conditions).

68. Project: Total design and construction of which Work performed under Contract Documents may be whole or part.

69. Project Manager: If used elsewhere in the Contract Documents, "Project Manager" shall mean a person representing the Owner in the administration of the Contract Documents. Project Manager may be an employee of or an independent consultant to Owner. When Project

Manager is referred to within the Contract Documents and no Project Manager has in fact been designated, then the matter shall be referred to Owner. The term Project Manager shall be construed to include employees of Project Manager and/or employees that Project Manager supervises. When the designated Project Manager is an employee of Owner, his or her authorized representatives on the Project will be included under the term Project Manager. If Project Manager is an employee of Owner Project Manager is the beneficiary of all Design-Build Entity obligations to Owner, including without limitation, all releases and indemnities.

70. Project Manual: Project Manual consists of Proposal Requirements, Agreement, Bonds, Certificates, Contract Conditions, Bridging Documents, Drawings, and Specifications.

71. Project Record Documents: All Project deliverables required under the Contract Documents, including without limitation, as built drawings; Installation, Operation, and Maintenance Manuals; and Machine Inventory Sheets.

72. Provide: Furnish and install.

73. PWB: SPWB.

74. Request for Information ("RFI"): A document prepared by Design-Build Entity requesting information regarding the Project or Contract Documents. The RFI system is also a means for Owner to submit Contract Document clarifications or supplements to Design-Build Entity.

75. Request for Proposals ("RFP"): A document issued by Owner to Design-Build Entity whereby Owner may initiate changes in the Work or Contract Time as provided in Contract Documents.

76. Request for Substitution ("RFS"): A document prepared by Design-Build Entity requesting substitution of materials as permitted and to the extent permitted in Contract Documents.

77. RFI-Reply: A document consisting of supplementary details, instructions, or information issued by Owner that clarifies or supplements Contract Documents, and with which Design-Build Entity shall comply. RFI-Replies do not constitute changes in Contract Sum or Contract Time except as otherwise agreed in writing by Owner. RFI-Replies will be issued through the RFI administrative system.

78. Samples: Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

79. Services: As defined in Document 00 7253 (General Conditions).

80. Shop Drawings: All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Design-Build Entity (other than Drawings and Specifications) and submitted by Design-Build Entity to illustrate some portion of the Work.

81. Shown: As indicated on Drawings.

82. Site: The particular geographical location of Work performed pursuant to the Contract Documents.

83. Specifications: The written portion of the Contract Documents consisting of requirements for materials, equipment, construction systems, standards, and workmanship for the Work; performance of related services. However, unless the context clearly requires otherwise, Specifications do not include any Bridging Documents.

84. Specified: As written in Specifications.

85. SPWB. California State Public Works Board, or successor.

86. Subcontractor: A person or entity that has a direct contract with Design-Build Entity to perform a portion of the Work at the Site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and neutral in gender and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate Design-Build Entity or subcontractors of a separate Design-Build Entity. Also, while the term "Subcontractor" includes design-assist and design-build subcontractors (of any tier), unless the context clearly requires otherwise it does not include Designers.

87. Substantial Completion: The Work (or a specified part thereof) has progressed to the point where, in the opinion of Owner as evidenced by a notice or certificate of Substantial Completion, the Work is sufficiently complete, in accordance with Contract Documents, so that Owner may occupy or utilize the Work (or specified part) for the purposes for which it is intended, and unperformed or incomplete work elements are minor in nature; or if no such certificate is issued, when the Work (or specified part) is complete and ready for final payment as evidenced by written recommendation of Owner for final payment. The terms "Substantially Complete" and "Substantially Completed" as applied to all or part of the Work refer to Substantial Completion thereof.

88. Supplemental Instruction: A written directive from Owner to Design-Build Entity ordering alterations or Modifications that do not result in change in Contract Sum or Contract Time, and do not substantially change Drawings or Specifications.

89. Testing and special inspection agency: An independent entity engaged to inspect and/or test the workmanship, materials, or manner of construction of buildings or portions of buildings, to determine if such construction complies with the Contract Documents and applicable codes.

90. Underground Facilities: All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities that have been installed underground to furnish any of the following services or materials: Electricity, gases, chemicals, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems, or water.

91. Work: The entire completed design and construction, or the various separately identifiable parts thereof, required to be furnished under the Contract Documents within the Contract Time (including without limitation Services). Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing design and other services and furnishing documents, all as required by the Contract Documents including, once approved by Owner as provided in Contract Documents, everything shown in the Drawings and set forth in the Specifications. Wherever the word “work” is used, rather than the word “Work,” it shall be understood to have its ordinary and customary meaning.

C. Other Defined Terms. The following terms are not necessarily identified with initial caps; however they shall have the meaning set forth below:

1. Wherever words “as directed,” “as required,” “as permitted,” or words of like effect are used, it shall be understood that direction, requirements, or permission of Owner is intended. Words “sufficient,” “necessary,” “proper,” and the like shall mean sufficient, necessary, or proper in judgment of Owner. Words “approved,” “acceptable,” “satisfactory,” “favorably reviewed,” or words of like import, shall mean approved by, or acceptable to, or satisfactory to, or favorably reviewed by Owner.

2. Wherever the word “may” or “ought” is used, the action to which it refers is discretionary. Wherever the word “shall” or “will” is used, the action to which it refers is mandatory.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 4523

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control including:

1. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Design-Build Entity of responsibility for compliance with the Contract Document requirements.

2. Specific quality-assurance and control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.

3. Specified tests, inspections, and related actions do not limit Design-Build Entity's other quality-assurance and control procedures that facilitate compliance with the Contract Document requirements.

4. Requirements for Design-Build Entity to provide quality-assurance and control services required by the County, or authorities having jurisdiction are not limited by provisions of this Section.

1.03 DESCRIPTION

A. Establish and maintain a Quality Assurance / Quality Control (QA / QC) program as described in this section. The QA / QC program must cover construction operations on-site and off-site and must be keyed to the proposed construction sequence and serve as the foundation on which the Commissioning Plan will be built and executed for the mechanical and electrical systems.

B. The process of assuring quality and compliance for Kern County BHRS Psychiatric Health Facility Project will take place in two ways. QA / QC must implement a program to monitor, verify, and accept the work of Kern County BHRS Psychiatric Health Facility Design-Build Package during the construction installation, especially the equipment and the system components. The QA / QC program will coordinate with the Commissioning of Kern County BHRS Psychiatric Health

Facility Design-Build Package and dovetail the monitoring and requirements for systems and equipment identified under both programs. The Commissioning program will plan, monitor, verify, and accept the operation and the performance of the equipment and systems. In particular, the operation and performance of the mechanical and electrical systems will only be available for verification and acceptance upon the successful execution of the QC / QA program with regard to their installation.

1.04 REQUIREMENTS

A. QA / QC Program Requirements - The QA / QC program consists of a QA / QC Organization, a Quality Control (QC) Plan, attending a QA / QC Plan meeting with the County, attending a Coordination and Mutual Understanding Meeting with the County, conducting QA / QC meetings on site, performing three phases of control: performing submittal review, ensuring testing is performed, and preparing QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations which comply with the requirements of this Contract. In addition, this Section consists of the coordination of the QA / QC program with the Commissioning program.

1.05 DEFINITIONS

A. Quality Assurance Services: Activities, actions, and procedures performed at a level above Quality Control to assure the work performed has in effect a quality control procedure and process performed by those doing the Work to guard against defects and deficiencies and assure that proposed construction will comply with requirements. Includes submittals, certifications, and other actions to assure that the proposed products and services will meet the Contract requirements. Services do not include Contract enforcement activities performed by the County.

B. Quality Control Services: Tests, inspections, procedures, and related actions at the level where the work is performed, during and after execution of the Work, to evaluate that actual products and completed construction comply with all Contract requirements.

C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.

D. Laboratory Mockups: Full-size, physical assemblies that are constructed at a testing facility to verify performance characteristics.

E. Preconstruction Testing: Tests and inspections that are performed specifically for the Kern County BHRS Psychiatric Health Facility Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

F. Product Testing: Tests and inspections that are performed by an Nationally Recognized Testing Laboratory (NRTL), an National Voluntary Laboratory Accreditation Program (NVLAP), or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

G. Source Quality Control Testing: Tests and inspections that are performed at the source, i.e., Plant, mill, factory, or shop.

H. Field Quality Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

I. Testing Agency: An entity engaged by the County to perform specific tests, inspections, or both. Testing laboratory will mean the same as testing agency. The testing agency will be under the control of the County's Construction Manager.

J. Installer / Applicator / Erector:

1. Design-Build Entity or another entity engaged by Design-Build Entity as an employee, Subcontractor, or Sub-subcontractor experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for Kern County BHRS Psychiatric Health Facility, whose work has resulted in construction with a record of successful in-service performance

2. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.

K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to Kern County BHRS Psychiatric Health Facility; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

L. Test: All tests to be performed in the presence of the County.

M. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for Kern County BHRS Psychiatric Health Facility and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

N. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for Kern County BHRS Psychiatric Health Facility and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

O. Professional Architect / Engineer Qualifications: A professional Architect / Engineer who is legally qualified and licensed to practice in California and who is experienced in providing Architecture and Engineering services of the kind indicated. Architect / Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for Kern County BHRS Psychiatric Health Facility in material, design, and extent.

P. Specialists:

1. Certain sections of the Specifications require that specific construction activities will be performed by entities that are recognized experts in those operations. Specialists must satisfy qualification requirements indicated and must be engaged for the activities indicated.

2. Requirement for specialists must not supersede building codes and regulations governing the Work.

Q. Testing Agency Qualifications:

1. An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to America Society for Testing of Materials (ASTM) E548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.

2. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.

3. NVLAP: A testing agency accredited according to National Institute of Standards and Technology's (NIST) NVLAP.

R. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for Kern County BHRS Psychiatric Health Facility.

S. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods.

1.06 REGULATORY REQUIREMENTS

A. General: All applicable federal, County and local requirements will govern the construction and completion of the Work; all must be current enforced editions.

B. Copies of Regulations: Copies of the applicable regulations and codes, federal, County and local to be retained at Kern County BHRS Psychiatric Health Facility site to be available for reference by parties who have a reasonable need.

C. Enforcement:

1. References in the Contract Documents to "code" or to "building code" not otherwise identified will mean the foregoing specified codes, together with the additions, changes, amendments and interpretations adopted by the enforcing agency, and in effect on the date the Contract is executed.

2. Nothing on the Contract Documents will be interpreted as requiring or permitting work that is contrary to these rules, regulations and codes.

3. Where other codes or standards are referenced in the Contract Documents, the affected work must meet or exceed the applicable requirements of such codes and standards.

4. The code, specification or standard referred to will have full force and effect as though printed in the Contract Documents, except as modified.

5. Where the Contract Documents call for or describe materials, work quality or construction of a better quality, higher standard or larger size than is required by said laws, codes, rules and regulations, the provisions of the Contract Documents will take precedence over said laws, codes, rules and regulations.

D. Other Applicable Laws and Regulations:

1. Applicable federal, County, and local laws, and the rules and regulations of governing utility districts and the various other authorities having jurisdiction over the construction and completion of Kern County BHRS Psychiatric Health Facility, including the latest rules and regulations of the California Labor Code, will apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though printed in the Contract Documents.

2. If laws, ordinances, rules, regulations or orders of public agency having jurisdiction require work to be inspected, tested or approved by some authority other than the County or Design-Build Entity, the Design-Build Entity must give required notices and make arrangements, deliver to the County the certificates of inspection, test, or approval of such public agency, and pay costs therefore unless otherwise provided in the Contract Documents.

1.07 CONFLICTING REQUIREMENTS

A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to County for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified must be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to County for a decision before proceeding.

1.08 QUALITY ASSURANCE / QUALITY CONTROL ON INSTALLATION

A. Monitoring: Monitor quality control over suppliers, manufacturers, products, services, site conditions and workmanship to produce work of the specified quality.

B. Compliance: Comply fully with manufacturers' instructions including each step in sequence and comply fully with the Contract documents inclusive of the entirety of the intent of the Design Criteria.

C. Conflicts: Should manufacturers' instructions conflict with the Contract Documents, request clarification from University's Representative before proceeding.

D. Standards:

1. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, code, or specified requirements indicate higher standards or more precise workmanship.

2. Perform Work by persons qualified to produce workmanship of specified quality.

E. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, code, or specified requirements indicate higher standards or more precise workmanship.

F. Coordination of all above-ceiling work is mandatory prior to any installation.

1. Documentation of such coordination will be required prior to applicable installation taking place in the specific area concerned.

1.09 VERIFICATION OF CONDITIONS

A. Prior to installing any portion of the Work, Design-Build Entity must inspect the work already in place to receive the work to be installed and arrange for correction of defects in the existing workmanship, material or conditions that may adversely affect work to be installed. Such inspections must include test applications of the materials to be installed as required to establish the correct condition of surfaces involved. Where the specifications require a material to be installed under the supervision or inspection of the material manufacturer or its representative, Design-Build Entity must ensure that the manufacturer or its representative also inspects the work in place and issues a letter of approval to the County.

1.10 REFERENCES

A. The publications listed below form a minimum part of this specification to the extent referenced. The current editions of the publications are referred to in the text by the basic designation only.

1. ASTM A880 – Criteria for Use in Evaluation of Testing Laboratories and Organizations for Examination and Inspection of Steel, Stainless Steel, and Related Alloys.

2. ASTM C1077 – Laboratories Testing Concrete and Concrete Aggregates for Use In Construction and Criteria for Laboratory Evaluation.

3. ASTM D3666 (Rev. A) – Evaluating and Qualifying Agencies Testing and Inspecting Bituminous Paving Materials.

4. ASTM D3740 – Evaluation of Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.

5. ASTM E329 – Evaluation of Testing and Inspection Agencies as Used in Construction.

6. ASTM E543 (Rev. A) – Determining the Qualification of Non-Destructive Testing.

7. ASHRAE – American Society of Heating, Refrigeration, and Air Conditioning Engineers.

8. AWS – American Welding Society.

9. SMACNA – Sheet Metal and Air Conditioning Contractors National Association.

10. ACI – American Concrete Institute.

11. AABC – American Air Balance Council.

12. NETA – International Electrical Test and Acceptance Association.

13. IEEE – Institute of Electrical and Electronic Engineers.

14. All other standards as referenced throughout this set of Specifications.

1.11 SUBMITTALS

A. Refer to Section 01 3300 (Submittals) for submittal procedures.

B. Quality Assurance / Quality Control (QA / QC) Plan: Submit a QA / QC Plan for the County's approval within thirty (30) days prior to commencement of construction.

C. Schedule of Tests and Inspections. Prepare in tabular form and include the following, as applicable:

1. Specification Section number and title.

2. Description of test and inspection.

3. Identification of applicable standards.

4. Identification of test and inspection methods.

5. Number of tests and inspections required.

6. Time schedule or time span for tests and inspections.

7. Entity responsible for performing tests and inspections.

8. Requirements for obtaining samples.

9. Unique characteristics of each quality control service.

D. Reports:

1. QA / QC Reports.

   a. Daily Inspection Reports.

   b. Public Utility Acceptance Reports.

   c. State of California Inspection Reports

   d. Visitor Observation Reports.

   e. Product Manufacturers Inspection Reports (roofing, waterproofing, etc).

2. Prepare and submit certified written reports that include the following:

   a. Date of issue.

   b. Kern County BHRS Psychiatric Health Facility title and number.

   c. Name, address, and telephone number of testing agency.

   d. Dates and locations of samples and tests or inspections.

   e. Names of individuals making tests and inspections.

   f. Description of the Work and test and inspection method.

g. Identification of product and Specification Section.

h. Complete test or inspection data.

i. Test and inspection results and an interpretation of test results.

j. Record of temperature and weather conditions at time of sample taken and testing and inspecting.

k. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.

l. Recommendations on retesting and reinspecting.

E. Permits, Licenses, and Certificates: For County's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

F. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to the County, with copy to Design-Build Entity. Interpret tests and inspections and County in each report whether tested and inspected work complies with or deviates from the Contract Documents.

G. Design-Build Entity Responsibilities include the following:

1. Provide test specimens representative of proposed products and construction.

2. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.

3. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance specifications.

4. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Kern County BHRS Psychiatric Health Facility.

5. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.

6. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups; do not reuse products on Kern County BHRS Psychiatric Health Facility.

7. Provide a full-time QA / QC Manager committed to Kern County BHRS Psychiatric Health Facility.

H. Mockups:

1. Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

2. Build mockups in location and of size indicated or, if not indicated, as directed by the County.

3. Notify the County seven (7) days in advance of dates and times when mockups will be constructed.

4. Demonstrate the proposed range of aesthetic effects and workmanship.

5. Obtain the County's approval of mockups before starting work, fabrication, or construction. Allow seven days for initial review and each re-review of each mockup.

6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

7. When directed, demolish and remove mockups.

I. Laboratory Mockups: Comply with requirements of pre-construction testing and those specified in individual Sections and Divisions.

1.12 QA / QC Organization

A. QA / QC Manager:

1. Duties: The QA / QC Manager's duties on Kern County BHRS Psychiatric Health Facility are limited to the responsibility of managing and implementing the QA / QC program on a full-time basis. The QA / QC Manager is required to attend the QA / QC Plan meeting, attend the Coordination and Mutual Understanding Meeting, conduct the QA / QC meetings, perform submittal review, ensure testing is performed and prepare QA / QC certifications and documentation required in this Contract. The QA / QC Manager is responsible for managing and coordinating the three phases of control and documentation performed by the QA / QC specialists. No Work or testing may be performed unless the QA / QC Manager or the Designated Alternate QA / QC Manager is on the Kern County BHRS Psychiatric Health Facility site. The QA / QC Manager must report directly to an officer of the Design-Build Entity's Entity and must not be the same individual as, nor be subordinate to, the Kern County BHRS Psychiatric Health Facility Superintendent or the Design-Build Entity's Project Manager. The QA / QC Manager will coordinate the QA / QC activities with the County and the IOR, insuring a consistent and progressive verification of the mechanical and electrical systems from the installation Quality Control program through the operation and performance acceptance of the Kern County BHRS Psychiatric Health Facility Project.

2. Commissioning Program: The QA / QC Manager must assure that inspections by the Design-Build Entity's work force have occurred prior to calling on the County's Inspectors for an inspection. This will minimize the failed inspections recorded and documented by the County.

3. Qualifications: A graduate of a four-year, accredited college program in one of the following disciplines: Engineering, Architecture, Construction Management, Engineering Technology, Building Construction, or Building Science with a minimum of ten (10) years of experience as an inspector, QA / QC Manager, project manager, or construction manager on major and complex projects of similar size and scope. Submit qualifications for review and approval by the County. Show examples where candidate performed similar duties and responsibilities. Examples should describe QA / QC Programs of similar type Projects, including health facilities.

B. Alternate QA / QC Manager Duties and Qualifications: Designate an alternate for the QA / QC Manager at the Kern County BHRS Psychiatric Health Facility site to serve in the event of the designated QA / QC Manager's absence. The educational and experience requirements for the Alternate QA / QC Manager will be similar to those for the QA / QC Manager. This individual must also act as an alternate to the Kern County BHRS Psychiatric Health Facility QA / QC and will serve in the event of the designated QA / QC's absence.

C. QA / QC Specialists Duties and Qualifications: Provide a QA / QC specialist at the Kern County BHRS Psychiatric Health Facility site for each of the areas of responsibilities specified below, who will assist and report to the QA / QC Manager, and who will have no duties other than performing the three phases of control and preparing documentation required in this Contract. Pertinent QA / QC specialists are required to attend the Coordination and Mutual Understanding Meeting, QA / QC meetings, and perform the three phases of control and prepare documentation for each definable feature of Work in their area of responsibility at the frequency specified below. The mechanical and electrical specialists will also assist in the commissioning activities, specifically the monitoring of the Start Up and Functional Performance Tests (FPT).

TABLE A

QUALIFICATION EXPERIENCE IN AREA OF RESPONSIBILITY	AREA OF RESPONSIBILITY	(FREQUENCY)
Plumbing, fire protection and/or piping installation contractor, mechanic, or superintendent with 10 years experience.	Installation and testing of piping systems; assist in the monitoring of the Start Up and FPT's.	Full-time during roughing plumbing and piping installations
Sheet metal contractor, mechanic, or superintendent with 10 years experience.	Installation & testing all ductwork systems; assist in the monitoring of the Start Up and FPT's.	Full-time during ductwork installation
Building controls manufacturer's representative with 5 years of experience.	Operation and performance of the controls system, review controls submittals	Part-time during the submittal and installation stage. Full time during the point-by-point evaluation of the system, refer to Division 1 and Divisions 20, 22 and 23
Electrical contractor/journeyman w/ CA license as electrician and a fire alarm contractor/journeyman or vendor.	Installation & testing normal and essential power systems; assist in the monitoring of the Start Up and FPT's.	Full-time during installation, wiring, connection, etc. & testing; refer to Division 1 and Division 26 Part- time during submittal, raceway rough in
Roofing Manufacturer's representative with 5 years minimum.	Installation and testing of the roofing systems	Full-time during roofing operations
Waterproofing consultant/manufacturer's Technical Representative.	Installation & testing of waterproofing systems	Full-time during waterproofing operations

D. Submittal Review Duties and Qualifications:

1. Submittal Assistant: Provide a full-time Submittal Assistant at the Kern County BHRS Psychiatric Health Facility site until 95 percent of the submittals have been approved. Sole duty of the Submittal Assistant will be to assist the QA / QC Manager in processing, certifying QC compliance and maintaining files for submittals. Submittal Assistant must have a minimum of (3) years of experience as a project engineer, scheduler or construction- related worker.

1.13 QA / QC PLAN

A. Requirements: Provide for approval by the County, a QA / QC Plan that covers both on-site and off-site Work, and includes the following:

1. A chart showing the QA / QC organizational structure and its relationship to the production side of the organization.

2. Names and qualifications, in resume format, for each person in the QA / QC organization.

3. Duties, responsibilities and authorities of each person in the QA / QC organization.

4. Documentation procedures, including proposed report formats for all reports required herein.

5. A letter signed by an officer of the firm appointing the QA / QC Manager and stating that he/she is responsible for managing and implementing the QA / QC program as described herein, and that the QA / QC Manager reports to an officer of the firm, someone other than Design-Build Entity's Project Manager. Include in this letter the QA / QC Manager's authority to direct the stopping, removal and replacement of non- conforming Work.

6. Procedures for reviewing, approving and managing submittals. Provide the name(s) of the person(s) in the QA / QC organization authorized to review and certify submittals prior to approval.

7. A Testing Plan and Log that includes the tests required, referenced by the specification paragraph number requiring the test, test procedures, the frequency, schedule activity number and the person responsible for each test.

8. Procedures to identify, record, track and complete rework items, including schedule activity numbers.

9. A listing of outside organizations such as, architectural and consulting engineering firms that will be employed by Design-Build Entity and a description of the services and resumes of personnel these firms will provide.

10. A list of the definable features of work. A definable feature of work is a task that is separate and distinct from other tasks and requires separate control requirements. As a minimum, unless otherwise approved by the County, consider each section of the specifications as a definable feature of work. However, there may be more than one definable feature of work in each section of the specifications.

11. A personnel matrix showing, for each section of the specification, who will review and approve submittals, who will perform and document the three phases of control, and who will perform and document the testing.

12. Provide procedures describing mandatory above ceiling coordination prior to the execution of any above ceiling work.

B. Preliminary Work Authorized Prior to Approval: The only work that is authorized to proceed prior to the approval of the QA / QC Plan is mobilization of storage and office trailers and surveying, the preparation of excavation shoring systems, and removal of hazardous materials. Design-Build Entity must not proceed on other activities without written approval from the County

C. Approval: Approval of the QA / QC Plan is required before the start of construction. County reserves the right to require changes in the QA / QC Plan and operations as necessary to ensure the specified quality of Work. County reserves the right to interview any member of the QA / QC organization at any time in order to verify his/her submitted qualifications.

D. Notification of Changes: Submit written notification to County of any proposed change, including changes in the QA / QC organization personnel, a minimum of seven (7) days prior to a proposed change. Design-Build Entity must receive County approval prior to implementing such proposed changes.

1.14 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; see this Section, Part 3 – Execution. Individual Specification Sections specify additional requirements.

B. Design-Build Entity's Records:

1. Maintain accurate, current records on an appropriate form for all inspections and tests performed, instructions received from the County, firm or individual performing test, and actions taken as a result of those instructions.

2. These records must include evidence that the required inspections or tests have been performed (including type and number of inspections or tests, nature of defects, causes for rejection, etc.), proposed or directed remedial action, and corrective action taken.

3. Document inspections and tests as required by each Specification Section.

C. Design Quality Program:

1. The Design-Build Entity's Quality Control Program must include, but not limited to, Design-Build Entity's procedures for thoroughly reviewing the Design Documents for:

a. Functionality.

b. Design Excellence.

c. Sustainability.

d. Maintainability.

e. Coordination among disciplines.

f. Constructability.

g. Value Engineering.

h. Quality Engineering.

i. Life Cycle.

j. Energy Efficiency.

k. Fire Life Safety.

l. Code Compliance.

D. Construction Quality Control Plan:

1. The Design-Build Entity's Quality Control Program must include, but not limited to, Design-Build Entity's procedures to review construction through completion of the Kern County BHRS Psychiatric Health Facility with emphasis on the following:

a. Installation of construction site security and monitoring.

b. Maintenance of fire and life safety program.

c. Coordination.

d. Mitigation for noise, dust, runoff during construction and all California Environmental Quality Act (CEQA) Mitigation issues.

e. Payment of all fees permits and licenses.

f. Monitoring for construction and employee, parking, deliveries and storage.

g. Protection of the Public and their use of the right of way surrounding the construction site.

h. Protection of archaeological resources (if applicable).

i. Protection of the plants and trees.

j. Protection, reinstatement of existing utilities and services.

k. Staging and shoring of all excavations.

l. Excavation of sub-grade and placement of compacted fill.

m. Excavation, placement, backfill and compaction of utilities and services.

n. Testing, inspections, certifications and placement of concrete foundations and structures.

o. Testing, inspections, certifications, erection and assembly of structural components.

p. Testing, inspection, certifications of all electrical services, transformers, switchgear and equipment

q. Testing, inspection, certifications of all pipelines, valves and equipment, including but not limited to:

    1) Diesel and gas.

    2) Condensate lines.

    3) Cooling water, supply and return.

    4) Filtration and conditioning systems

    5) Sewer and storm drainage systems

    6) Testing, inspection, and certification of all machinery, mechanisms and equipment.

r. Testing, inspection, certification of upgrade and integration of controls systems.

s. Testing, inspection of all architectural features and finishes.

t. Commissioning, occupancy, post occupancy and handover including but not limited to:

    1) Landscape and gardens.

2) Buildings and structures.

3) Plant machinery, mechanisms, and equipment.

4) Utilities and services.

5) Controls and security systems.

1.15 TESTING LABORATORY SERVICES

A. Testing Responsibility:

1. The County will employ and pay for services of an independent testing laboratory to perform specified testing per CCR Title 24, and any other testing specifically indicated in the Contract Documents to be the County's responsibility.

a. The County will furnish Design-Build Entity with names, addresses, and telephone numbers of the independent testing laboratory and the Kern County Representative responsible for monitoring the testing.

b. Design-Build Entity must cooperate with laboratory to facilitate execution of its required services.

2. Design-Build Entity will employ and pay for services related to testing, adjusting, and balancing of systems as specified under individual sections.

B. Required Tests and Inspection:

1. Testing and inspection services are required to verify compliance with the Contract Documents. These services will, in no way, relieve the Design-Build Entity from its obligations to perform the work of the Contract.

a. Required testing and inspection services for specific construction and/or material production activities are referenced in individual Sections, as applicable.

b. Specified tests, inspections, and related activities do not preclude Design-Build Entity's quality control procedures that facilitate compliance with the Contract Document requirements.

C. Design-Build Entity's Responsibilities:

1. Cooperate with laboratory personnel and County representative; provide access to work and to manufacturer's operations.

2. Provide laboratory with adequate quantities of representational samples of materials proposed to be used which require testing.

3. Provide to laboratory preliminary design mix proposed to be used for concrete, and other material mixes which require control by testing laboratory.

4. Furnish copies of products tests reports as required.

5. Furnish incidental labor and facilities:

    a. To provide access to work to be tested.

    b. To obtain and handle samples at the Kern County BHRS Psychiatric Health Facility site or at source of product to be tested.

    c. To facilitate inspections and tests.

    d. For storage and curing of test samples.

6. Notify County representative 48 hours in advance of operations to allow for laboratory assignment of personnel and scheduling of tests and/or inspections. When tests or inspections cannot be performed after such notice due to any factors for which Design-Build Entity is responsible, Design-Build Entity must reimburse the County for all laboratory personnel labor and travel expenses incurred.

    a. Notifications must include:

        1) Specification section number and title.

        2) Description of test and/or inspection.

        3) Identification of all applicable standards.

        4) Identification of test and inspection methods.

        5) Number of tests and inspections required.

        6) Time schedule or time span for tests and inspections.

        7) Requirements for obtaining samples.

        8) Any unique characteristics or required test or inspection.

7. Retesting or additional inspection required due to nonconformance with the Contract Documents must be performed by the County's independent testing laboratory at the Design-Build Entity's expense.

8. Testing and inspection requested by Design-Build Entity and not required by the Contract Documents are Design-Build Entity's responsibility.

9. When additional testing services are needed for Design-Build Entity convenience, Design-Build Entity will employ and pay for the services of a separate, equally qualified independent testing laboratory or make arrangements with County's laboratory and pay for such additional samples and tests.

10. The County Representative will have the right to reject materials and workmanship which are defective or to require correction. Rejected workmanship must be satisfactorily corrected and rejected materials must be removed from the premises without charge to the County. If Design-Build Entity does not correct such rejected work within a reasonable time, fixed by written notice, the County may correct same and charge the expense to Design-Build Entity.

11. Should it be considered necessary or advisable by the County at any time before Acceptance of the Work to make examination of work already completed by removing or tearing out same, Design-Build Entity must, on request, promptly furnish necessary facilities, labor and materials. If such work is found to be defective in any respect due to fault of Design-Build Entity or subcontractor, will defray all expenses of such examinations and of satisfactory reconstruction. If, however, such work is found to meet requirements of the Contract Documents, additional cost of labor and material necessary involved in the examination and replacement will be allowed the Design-Build Entity.

1.16 TEST AND INSPECTION LOG A

A. General:

1. Prepare a record of tests and inspections. Include the following:

   a. Date test or inspection was conducted.

   b. Description of the Work tested or inspected.

   c. Date test or inspection results were transmitted to County.

   d. Identification of testing agency or special inspector conducting test or inspection.

2. Maintain log at Kern County BHRS Psychiatric Health Facility site. Post changes and modifications as they occur. Provide access to test and inspection log for the County's reference during normal working hours.

3. As a minimum, Design-Build Entity must obtain the following tests and/or inspections:

a. Soils:

1) Test and analyze fill and backfill materials.

2) Test compaction of fill and backfill materials.

3) Inspect bearing surfaces of foundation excavation.

4) Test compaction trench backfill.

5) Test compaction aggregate under asphalt concrete paving.

6) Test compaction aggregate under site concrete.

b. Asphalt concrete:

1) Test asphalt.

2) Test compaction of asphalt.

c. Concrete:

1) Test identified reinforcing steel.

2) Test cement.

3) Test aggregate for suitability.

4) Review concrete mix design.

5) Perform continuous batch Plant inspection.

6) Test concrete for air content.

7) Inspect concrete placement.

8) Perform shrinkage tests.

9) Make slump tests.

10) Cast compression test cylinders. Test cylinders at 7 and 28 days.

d. Structural steel:

1) Review mill certificates for shapes and plates.

2) Visually inspect shop and field welding.

3) Test full penetration welds.

e. Metal fabrications:

1) Visually inspect shop and field welding.

2) Test full penetration welds.

1.17 QA / QC PLAN MEETING

A. Prior to submission of the QA / QC Plan, meet with County and IOR to discuss the QA / QC Plan requirements of this Contract. The purpose of this meeting is to develop a mutual understanding of the QA / QC Plan requirements prior to plan development and submission.

1.18 COORDINATION AND MUTUAL UNDERSTANDING MEETING

A. After submission of the QA / QC Plan, but prior to the start of construction, meet with County to discuss the QA / QC program required by this Contract. The purpose of this meeting is to develop a mutual understanding of the QA / QC details, including forms to be used for documentation, administration for on-site and off-site Work, and the coordination of Design-Build Entity's management, production and QA / QC personnel with the County. As a minimum, Design-Build Entity's personnel required to attend must include the project manager, project superintendent, QA / QC Manager, and QA / QC specialists. Minutes of the meeting must be prepared by the QA / QC Manager and signed by both Design-Build Entity and County.

1.19 QA/QC MEETINGS ON SITE

A. After the start of construction, the QA / QC Manager must conduct weekly QA / QC meetings at the Kern County BHRS Psychiatric Health Facility site with the project superintendent (not "superintendent staff") and QA / QC specialists. The QA / QC Manager must prepare the minutes of the meeting and provide a copy to County within two working days after the meeting. County may attend these meetings. The QA / QC Manager must notify County at least (2) working days in advance of each meeting. As a minimum, the following must be accomplished at each meeting:

1. Review the minutes of the previous meeting;

2. Review the schedule and the status of Work:

a. Work or testing accomplished since last meeting

b. Rework items identified since last meeting

c. Rework items completed since last meeting

d. Review the mandatory coordination of all above-ceiling work

3. Review the status of submittals:

    a. Submittals reviewed and approved since last meeting b. Submittals required in the near future

4. Review the Work to be accomplished in the next fourteen (14) days and documentation required. Schedule the three phases of control and testing:

    a. Establish completion dates for rework items

    b. Preparatory Phases required

    c. Initial phases required

    d. Follow-up phases required

    e. Testing required

    f. Status of off-site Work or testing

    g. Documentation required

5. Resolve QA/QC and production problems.

6. Address items that may require revising the QA / QC Plan:

    a. Changes in QA / QC organization personnel

    b. Changes in procedures.

1.20 THREE PHASES OF CONTROL

A. The QA/QC Manager must perform three phases of control to ensure that Work complies with requirements of the Performance Criteria, and the Specifications. The three phases of control must adequately cover both on-site and off-site Work and must include the following for each definable feature of Work: a definable feature of Work is a task which is separate and distinct from other tasks and requires separate control requirements as defined in Paragraph 1.13.A.11 herein.

1. Preparatory Phase: This phase is defined as: The QA / QC control phase, which occurs before the specific Work. During this phase the QA / QC team gathers information, prepares preliminary documentation and meets to discuss the work condition and process. Notify County at least (2) working days in advance of each Preparatory Phase meeting. Conduct a Preparatory Phase meeting with the QA / QC specialists, the Superintendent, subcontractor and the foreman responsible for the definable feature. The Preparatory Phase meeting must be conducted a minimum of five (5) working days and a maximum of ten (10) working days prior to the scheduled start of work for the definable feature. County may attend these meetings. The Commissioning Authority (CA) will attend these

meetings. The QA / QC Manager must prepare minutes of the Preparatory Phase meetings and provide a copy to County within two (2) working days after each meeting. Document the results of Preparatory Phase actions in the daily Design-Build Entity Quality Control Report. Perform the following tasks and submit a completed Preparatory Phase check off report to County within two (2) working days prior to beginning work on each definable feature of work:

a. Review each paragraph of the applicable specification sections;

b. Review the Contract Document documents including the Design Criteria;

c. Verify that appropriate shop drawings and submittals for materials and equipment have been submitted and approved. Verify receipt of approved factory test results, when required;

d. Review the testing plan and testing schedule and ensure that provisions have been made to provide the required QA/QC testing. The testing plan must list the parts of the testing process, application, phasing, pass/fail and remedy.

e. Examine the work area to ensure that the required preliminary work has been completed;

f. Examine the required materials, equipment and sample Work to ensure that they are on hand and conform to the approved shop drawings and submitted data;

g. Review the safety plan and appropriate activity hazard analysis to ensure that applicable safety requirements are met, and that required Material Safety Data Sheets (MSDS) are submitted;

h. Discuss construction methods and construction methods form.

i. Confirm above ceiling coordination is reconciled and that the intended systems' installations will be accessible for servicing. Provide written documentation that this coordination has, in fact, been completed prior to any installation taking place in the specific area concerned.

2. Initial Phase: This phase is defined as: The QA / QC control phase, which occurs as the specific Work begins. Notify County at least two (2) working days in advance of each Initial Phase. When construction crews are ready to start work on a definable feature of work, conduct the Initial Phase with the QA / QC Specialists, the Superintendent, and the foreman responsible for that definable feature of work. Observe the initial segment of the definable feature of Work to ensure that the Work complies with Contract requirements. Document the results of the Initial Phase in the daily Design-Build Entity Quality Control Report. Repeat the Initial Phase for each new

crew to work on-site, or when quality falls below specified acceptable levels. Perform the following for each definable feature of Work:

a. Each system being tested at one time

b. The test procedure reference

c. The pass/fail criteria

d. The schedule for tests

e. Confirm the quality of Workmanship required

f. Resolve potential conflicts

g. Review the Safety Plan and the appropriate activity hazard analysis to ensure that applicable safety requirements are met

h. Ensure that testing is performed by the approved laboratory

3. Follow-Up Phase: This phase is defined as: The QA/QC control phase which occurs as the specific Work continues to progress until its completion. Perform the following for on-going work daily, or more frequently, as necessary, until the completion of each definable feature of Work. Document in the daily Design-Build Entity Quality Control Report:

a. Ensure the work is in compliance with Contract requirements, including final sign off by the Inspector of Record (IOR)

b. Verify the quality of workmanship required

c. Ensure that testing is performed by the approved laboratory

d. Ensure that rework items are being corrected

4. Notification of Three Phases of Control for Off-Site Work: Notify County at least fourteen (14) days prior to the start of the Preparatory and Initial phases.

1.21 QA / QC CERTIFICATIONS

A. Design-Build Entity Quality Control Report Certification: Each Design-Build Entity Quality Control Report must contain the following Statement: "On behalf of Design-Build Entity, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the Contract Documents to the best of my knowledge, except as noted in this report."

B. Invoice Certification: Furnish a certificate to County with each Application for Payment, signed by the QA / QC Manager, attesting that Record Drawings are current and attesting that the work for which payment is requested, including stored material, is in compliance with Contract requirements.

C. Completion Certification: Upon completion of all or a designated portion of the Work, furnish a certificate to County, signed by the QA / QC Manager, attesting that "the work has been completed, inspected, tested and is in compliance with the Contract requirements".

1.22 DOCUMENTATION

A. Maintain current and complete records of on-site and off-site QA / QC program operations and activities, as well as County testing.

1. Design-Build Entity Daily Report: Reports are required for each day that Work is performed and must be attached to Design-Build Entity Quality Control Report prepared for the same day. Account for each day throughout the life of the Contract. The reporting of Work must be identified by terminology (activity number and description) consistent with the Construction Schedule. Design-Build Entity Daily Reports must be prepared, signed and dated by Design-Build Entity's Project Superintendent and must include the following information:

a. Date of report, name of Design-Build Entity, title and location of Contract and Superintendent present.

b. Weather conditions in the morning and in the afternoon including maximum and minimum temperatures.

c. A list of Design-Build Entity and subcontractor personnel on the Kern County BHRS Psychiatric Health Facility site, their trades, employer, work location, description of work performed (keyed to schedule activity numbers) and hours worked.

d. A list of job safety actions taken and safety inspections conducted. Indicate that safety requirements have been met including the results on the following:

1) Was a job safety meeting held? (If YES, attach a copy of the meeting minutes.)

2) Were there any lost time accidents? (If YES, attach a copy of the completed OSHA report.)

3) Was trenching/scaffold/high voltage electrical/high work done? (If YES, attach a statement or checklist showing inspection performed.)

4) Was hazardous material/waste released into the environment? (If YES, attach report of actions taken.)

5) Meetings held.

e. Include a "remarks" section in this report which must contain pertinent information including directions received, problems encountered during construction and delays, conflicts or errors in the drawings, specifications or coordinated drawings, field changes, safety hazards encountered, instructions given and corrective actions taken, delays encountered and a record of visitors to the Kern County BHRS Psychiatric Health Facility site.

2. Design-Build Entity Quality Control Report: Reports are required for each day that Work is performed and for every seven (7) consecutive days of no-work and on the last day of a no-work period. Account for each day throughout the life of the Contract. The reporting of Work must be identified by terminology and activity codes consistent with the construction schedule. Design-Build Entity Quality Control Reports must be prepared, signed and dated by the QA / QC Manager and must contain the following information:

a. Identify the control phase (Preparatory, Initial, and Follow-up) and the definable feature of work.

b. Results of the Preparatory Phase meetings held including the location of the definable feature of work and a list of personnel present at the meeting. Indicate in the report that for this definable feature of work, the drawings and specifications have been reviewed, submittals have been approved, materials comply with approved submittals, materials are stored properly, preliminary work was done correctly, the testing plan has been reviewed, and work methods and schedule have been discussed.

c. Results of the Initial Phase meetings held including the location of the definable feature of work and a list of personnel present at the meeting. Indicate in the report that for this definable feature of work the preliminary work was done correctly, samples have been prepared and approved, the workmanship is satisfactory, test results are acceptable, work is in compliance with the Contract requirements, and the required testing has been performed and include a list of who performed the tests.

d. Results of the Follow-up Phase inspections held including the location of the definable feature of work. Indicate if the report for this definable feature of Work that the work complies with the Contract requirements as approved in the Initial Phase, and that required testing has been performed and include a list of who performed the tests.

e. Results of the three Phases of Control for off-site work, if applicable, including actions taken.

f. List the rework items identified, but not corrected by close of business.

g. List the rework items corrected from the rework items list along with the corrective action taken.

h. Include a "remarks" section in this report which must contain pertinent information including directions received, quality control problem areas, deviations from the QA / QC Plan, construction deficiencies encountered, QA / QC meetings held, acknowledgement that as-built drawings have been updated, corrective direction given by the QC Organization and corrective action taken by Design-Build Entity.

i. Design-Build Entity Quality Control Report certification.

3. Reports from the QC Specialist(s): Reports are required for each day that Work is performed in their area of responsibility. QC specialist reports must include the same documentation requirements as Design-Build Entity Quality Control Report for their area of responsibility, QC specialist reports must be prepared, signed and dated by the QC specialists and must be attached to Design-Build Entity Quality Control Report prepared for the same day.

4. Testing Plan and Log: As tests are performed, the QA / QC Manager must record on the "Testing Plan and Log" the date the test was conducted, the date the test results were forwarded to IOR, remarks and acknowledgement that an accredited or approved testing laboratory was used. Attach a current updated copy of the "Testing Plan and Log" to the last daily Design-Build Entity Quality Control Report of each month.

5. Rework Items List: The QA / QC Manager must maintain a list of work that does not comply with the Contract requirements, identifying what items need to be reworked, the date the item was originally discovered, and the date the item was corrected. Attach the current copy of the "Design-Build Entity Rework Items List" to the last daily Design-Build Entity Quality Control Report of each month. Design-Build Entity will be responsible for including on this list items needing rework including those identified by County.

6. Record Drawings: The QA / QC Manager is required to review the Record Drawings to ensure that the drawings are kept current on a daily basis and marked to show precise locations of items, or any deviations, which have been made from the Construction Drawings. The QA / QC Manager, or QC Specialist assigned to an area of responsibility, must initial each deviation and each revision. Upon completion of Work, the QA / QC Manager must furnish a certificate attesting to the accuracy of the Record Drawings and verification by the IOR prior to submission to County.

7. Report Forms:

   a. The reporting format must contain the following information:

      1) Design-Build Entity Daily Report.

      2) Design-Build Entity Quality Control Report and Separate Continuation Sheets.

      3) Testing Plan and Log.

      4) Rework Items List.

      5) Construction Methods Form.

      6) QA / QC Manager's Preparatory Phase Check-off Report.

   b. Report forms must be transmitted via a method acceptable to County. All original documents, reports, completed forms, etc. must be forwarded to the County.

1.23 REPAIR AND PROTECTION

A. General:

1. Repair and protection are Design-Build Entity's responsibility, regardless of the assignment of responsibility for quality control services. Comply with Section 01 7329 (Cutting and Patching).

2. On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes. Protect construction exposed by or for quality control service activities.

3. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.01 QUALITY CONTROL TEAM AND QUALIFICATIONS

A. The Design-Build Entity must employ the services an American Society for Quality (ASQ) - certified engineer, or equivalent or better. He will comply with Paragraph 1.12, have a four-year degree, at least three (3) years of experience in QA / QC (10 years of experience overall), and a complete understanding of the following fundamentals:

1. Liaison with construction management staff, trades and subcontractors, Plant operational staff, fire and life safety officers, security officers to ensure continued seamless execution of site development from mobilization thru to post occupancy.

2. Quality philosophies, principles, systems, methods, tools, standards, organizational and team dynamics, customer expectations and satisfaction, supplier relations and performance, leadership, training, interpersonal relationships, improvement systems and professional ethics.

3. Quality system and its development, documentation and implementation to domestic and international standards or requirements.

4. Audit process including types of audits, planning, preparation, execution, reporting results and follow-up.

5. Implementation of quality programs, including tracking, analyzing, reporting and problem solving.

6. Be able to plan, control and assure product and process quality in accordance with quality principles, which include planning processes, material control, acceptance- sampling and measurement systems.

7. Have basic knowledge of reliability, maintainability, and risk management, including key terms and definitions, modeling, systems design, assessment tools and reporting.

8. Have a thorough understanding of problem-solving and quality improvement tools and techniques. This includes knowledge of management and planning tools, quality tools, preventive and corrective actions, and how to overcome barriers to quality improvements.

9. Be able to acquire and analyze data using appropriate standard quantitative methods across a spectrum of business environments to facilitate process analysis and improvements.

END OF SECTION

SECTION 01 5000

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section Includes:

1. Temporary Electricity.
2. Temporary Communications.
3. Temporary Water.
4. Fences.
5. Protection of Public and Private Property.
6. Temporary Sanitary Facilities.
7. Temporary Barriers and Enclosures.
8. Water Control.
9. Pollution Control.
10. Construction Aids.
11. Erosion Control.
12. Noise Control.
13. Traffic Control.
14. Removal of Temporary Facilities and Controls.

1.03 TEMPORARY ELECTRICITY

A. Design-Build Entity shall provide and maintain electrical power at the Site for construction purposes and for Design-Build Entity's and trailers and any other site offices or trailers required by the Owner in accordance with the Bridging Documents. Power may be obtained from Owner in accordance with the Bridging Documents, but Design-Build Entity must provide all necessary wiring and appurtenances for connection to Owner's system.

1.04 TEMPORARY COMMUNICATIONS

A. Provide, maintain, and pay for all applicable communications and data services to field office, as required by the Bridging Documents, commencing at time of Project mobilization, including all installation and connection charges.

B. Provide long distance phone service from vendor of contractor's choice and as approved for billing by the local phone company.

C. Project Superintendent shall carry a cellular phone to allow voice communication at all times.

1.05 TEMPORARY WATER

A. Provide and maintain suitable quality water service required for construction operations.

B. All water required for and in connection with the Work, including without limitation for dust control, shall be furnished in accordance with the Bridging Documents. Design-Build Entity shall be allowed to utilize water from the Owner for domestic uses per the Bridging Documents.

1.06 FENCES

A. All existing fences affected by the Work shall be maintained by Design-Build Entity until Final Completion. Fences which interfere with construction operations shall not be relocated or dismantled until Owner gives written permission to do so, and the period the fence may be left relocated or dismantled has been agreed upon. Where fences must be maintained across the construction easement, adequate gates shall be installed. Gates shall be kept closed and locked at all times when not in use.

B. On completion of the Work across any tract of land, Design-Build Entity shall restore all fences to their original or to a better condition and to their original locations.

1.07 PROTECTION OF PUBLIC AND PRIVATE PROPERTY

A. Design-Build Entity shall protect, shore, brace, support, and maintain all underground pipes, conduits, drains, and other underground construction uncovered or otherwise affected by its construction operations. All pavement, surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, fences, and other surface structures affected by construction operations, together with all sod and shrubs in yards, parkways, and medians, shall be restored to their original condition, whether within or outside the easement. All replacements shall be made with new materials.

B. Design-Build Entity shall be responsible for all damage to streets, roads, highways, shoulders, ditches, embankments, culverts, bridges, and other public or private property, regardless of location or character, which may be caused by transporting equipment, materials, or workers to or from the Work, Site or any part thereof, whether by Design-Build Entity or Subcontractors. Design-Build Entity shall make satisfactory and acceptable arrangements with the Owner, or the agency or authority having jurisdiction over the damaged property, concerning its repair or replacement or payment of costs incurred in connection with the damage.

C. All fire hydrants and water control valves shall be kept free from obstruction and available for use at all times.

1.08 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required temporary buildings with sanitary toilets for use of all workers. At a minimum, sanitary facilities shall be located at trailer site, staging area, and adjacent to work area.

B. Provide Owner Site trailer and conference room sanitary facilities as required by the Bridging Documents.

C. Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view to the greatest practical extent. If toilets of the chemically treated type are used, at least one toilet will be furnished for each 20 persons. Design-Build Entity shall enforce the use of such sanitary facilities by all personnel at the Site.

D. Comply with all minimum requirements of the Health Department or other public agency having jurisdiction; maintain in a sanitary condition at all times.

E. Design-Build Entity shall keep sanitary facilities free from graffiti.

1.09 TEMPORARY BARRIERS AND ENCLOSURES

A. Provide barriers to prevent unauthorized entry to construction areas to allow for Owner's use of Site, and to protect existing facilities and adjacent properties from damage from construction operations.

B. Provide barricades required by governing authorities for public access to existing buildings.

C. Protect vehicular traffic, stored materials, Site, and structures from damage.

1.10 STORM WATER CONTROL

A. Control Storm water on site in accordance with the Bridging Documents.

1.11 POLLUTION CONTROL

A. Design-Build Entity shall prevent the pollution of drains and watercourses by sanitary wastes, sediment, debris, and other substances resulting from construction activities. No sanitary wastes shall be permitted to enter any drain or watercourse other than sanitary sewers. No sediment, debris, or other substance shall be permitted to enter sanitary sewers without authorization of the receiving sanitary sewer service, and all possible Best Management Practices (BMPs) shall be taken to prevent such materials from entering any drain to watercourse. Rate of discharge for storm water may not be increased by the Project during or following construction.

B. Design-Build Entity shall comply with required storm water pollution control requirements. The Design-Build Entity shall implement BMPs during construction activities as specified in the applicable governing requirements for California Storm Water Best Management Practices Handbook and/or the Manual of Standards for Erosion and Sediment Control Measures (ABAG, 1995). Erosion and sedimentation control practices shall include installation of silt fences, straw wattle, soil stabilization, re-vegetation, and runoff control to limit increases in sediment in storm water runoff, including but not limited to, retention basins, straw bales, silt fences, check dams, geo-fabrics, drainage swales, and sand bag dikes.

C. In the event that dewatering of excavations is required, Design-Build Entity shall obtain the necessary approval and permits for discharge of the dewatering effluent from the local jurisdiction. Design-Build Entity shall be responsible for assuring that water quality of such discharge meets the appropriate permit requirements prior to any discharge.

1.12 CONSTRUCTION AIDS

A. Design-Build Entity shall furnish, install, maintain, and operate all construction aids required by it and its Subcontractors in the performance of the Work, except as otherwise provided herein. Such construction aids shall include elevators and hoists, cranes, temporary enclosures, swing staging, scaffolding and temporary stairs. Construction aids shall be furnished without charge to the Subcontractors, and all necessary erection, maintenance, and operating personnel shall be included. In the event of conflict, the contractor furnishing the equipment shall determine priorities in the best interest of the Project.

1.13 EROSION CONTROL

A. Design-Build Entity shall prevent soil erosion in accordance with the Bridging Documents.

1.14 NOISE CONTROL

A. When required by OSHA Standards, construction workers shall be provided with ear protection to operate equipment.

B. Design-Build Entity shall take reasonable measures to avoid unnecessary noise. Such measures shall be appropriate for the normal ambient sound levels in the area during working hours. All construction machinery and vehicles shall be equipped with practical sound-muffling devices, and operated in a manner to cause the least noise consistent with efficient performance of the Work. During construction activities on or adjacent to occupied buildings, and when appropriate, Design-Build Entity shall erect screens or barriers effective in reducing noise in the building and shall conduct its operations to avoid unnecessary noise which might interfere with the activities of building occupants.

C. Ensure and provide certification to Owner that all construction equipment and vehicles used for the Work are:

1. Maintained in good mechanical condition

2. Equipped with properly installed engine mufflers

1.15 TRAFFIC CONTROL

A. All traffic associated with the construction, including without limitation delivery and mail trucks, shall enter the Design-Build Entity's access gate and shall use the route indicated in 01 1100 - Summary of Work. Sign types and locations shall be reviewed by the Owner's Representative. Design-Build Entity shall provide signs directing construction and delivery traffic to this gate. Construction truck traffic shall be limited to off-peak traffic hours, between the hours of 10:00 a.m. and 4:00 p.m., Monday through Friday, unless other arrangements are made at least 24 hours in advance with Owner's Representative.

1.16 REMOVAL OF TEMPORARY FACILITIES AND CONTROLS

A. Remove temporary utilities, equipment, facilities, and materials prior to final inspection.

B. Remove underground installations.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 5600

SITE SECURITY AND SAFETY

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section includes Site Security and Safety.

1.03 SUBMITTALS

A. Refer to Section 01 3300 (Submittals) for submittal procedures.

B. Safety Program – See also Section 00 7319 (Safety Manual).

1.04 PROTECTION

A. Continuously maintain protection as necessary to protect the Work, as a whole and in part, and adjacent property and improvements from accidents, injuries or damage.

B. Properly protect the Work:

1. With lights, guard rails, temporary covers and barricades.

2. Enclose excavations with proper barricades.

3. Brace and secure all parts of the Work against storm and accident.

4. Provide such additional forms of protection that may be necessary under existing circumstances.

C. Provide and maintain in good condition all protective measures required to adequately protect the public from hazards resulting from the Work and to exclude unauthorized persons from the Work. When regulated by Building Code, Cal OSHA, or other authority, such legal requirements for protection shall be considered as minimum requirements. Be responsible for the protection in excess of such minimum requirements as required.

1.05 SITE SECURITY

A. As part of the Work included within the Contract Price, Contractor shall take and be fully responsible for all reasonably required measures to protect and maintain the security of persons, existing facilities and property at the Site, including without limitation preventing theft, loss, vandalism and improper concealment of personal property of the Owner and all persons lawfully present on the Site, and including times where workers are not present on the Site. Contractor's measures shall include, at a minimum, maintaining a log of all persons entering and leaving the Site and who they represent, what they are delivering and to whom.

B. No claim shall be made against Owner by reason of any act of an employee or trespasser, and Contractor shall repair all damage to Owner's property resulting from Contractor's failure to provide adequate security measures.

C. Contractor shall supply additional security fencing, barricades, lighting, and other security measures as required to protect and control the Site.

1.06 SAFETY PROGRAM

A. Within 15 days after Notice to Proceed, submit a Safety Program that has been reviewed and approved by an Industrial Hygienist certified by the American Board of Industrial Hygiene or a Certified Safety Professional. The Safety Program shall include the name, certification number, and certification seal of the Industrial Hygienist or Certified Safety Professional. Comply with the Safety Program and all applicable federal, state, and local regulation codes, rules, law and ordinances.

B. Receipt and / or review of the Safety Program by Owner, Engineer or Owner's representative shall not relieve Contractor of any responsibility for complying with all applicable safety regulations.

C. It is essential that Contractor and each Subcontractor implement an effective and vigorous Safety and Health Program to cover their respective portions of the Work. Subject to Contractor's overall responsibility for Project safety, it shall be understood that the full responsibility for providing a safe place to work with respect to their respective portions of the Work rests with Contractor and each individual Subcontractor.

D. Safety Program Components:

1. Injury and Illness Prevention Program (IIPP): Conforming to the General Industrial Safety Orders (CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 3203), and the California Labor Code (Section 6401.7).

2. Site-Specific Safety and Health Plan (SSHP): Describing health and safety procedures that shall be implemented during the Work in order to ensure safety of the public and those performing the Work. Follow the guidelines for a SSHP listed in CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 5192, Item (b)(4) f.

3. Confined Space Program: The Site contains permit- and non-permit-confined spaces. Owner will provide Contractor with any available information regarding permit space hazards, entry operations, and safety information relating to work in the permit spaces as set forth in the General Industrial Safety Orders (CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 5157). Permit space entry is allowed only through compliance with a permit space program meeting the requirements of Section 5157 of the General Industrial Safety Orders. During entry operations, or at the conclusion of entry operations, verbally notify Engineer of the permit space program followed and of any hazards confronted or created in permit spaces during entry operations.

E. The wearing of hard hats shall be mandatory at all times for personnel on Site. Supply sufficient hard hats to equip properly all employees and visitors.

F. Whenever an exposure exists, appropriate personal protective equipment (PPE) shall be used by all affected personnel. Supply PPE to all personnel under Contractor's direction.

1.07 SAFETY REQUIREMENTS

A. Standards. Maintain the Project in accordance with state and local safety and insurance standards.

B. Hazards Control.

1. Store volatile wastes in covered metal containers and remove from premises daily.

2. Prevent accumulation of wastes that create hazardous conditions.

3. Provide adequate ventilation during use of volatile or noxious substances.

C. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

1. Do not burn or bury rubbish or waste material on the Site.

2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.

3. Do not dispose of wastes into streams or waterways.

D. Provide accident information on the forms provided by Contractor. This information shall be provided on the same day as the occurrence of said incident.

1.08 SITE SAFETY OFFICER

A. Designate one of Contractor's staff as "Site Safety Officer" whose duties shall include the responsibility for enforcing the environmental protection provisions of the Contract Documents including safety and health, the requirements of the Occupational Safety and Health Act, and other applicable federal, state and local standards. Submit for review by Owner Contractor's intended traffic flow plan, security plan, program for temporary structures, housecleaning plan, demolition program, and environmental safety and health plan. After review by Owner, the implementation and enforcement of these plans shall become the responsibility of the Site Safety Officer. Any changes in the plans shall be requested by Contractor through the Site Safety Officer for written concurrence by Owner.

B. Owner's risk management representative(s) shall be allowed access to accident / injury and illness reports, inspection reports, scheduling and construction meetings, and safety meetings.

1.09 ADDITIONAL SAFETY CONTROLS

A. According to industry practices, it is the responsibility of all contractors of every tier to exercise reasonable care to prevent work-related injuries, property and equipment damage at the Project site, as well as minimize risk to the public and third-party property. All contractors shall undertake loss control prevention practices according to those requirements set by federal, state and city laws, statutes and specific project procedures developed for this project.

B. Should the Owner opt to proceed with an Owner Controlled Insurance Program, in the event of an accident it will be the responsibility of all contractors of every tier to see that injured workers or members of the public are given immediate medical treatment and that all appropriate medical and claim forms are filed with the appropriate State Authorities and in accordance with the claim procedures developed for this project.

C. Should the Owner opt to proceed with an Owner Controlled Insurance Program, failure of a Contractor or Subcontractor to submit Safety documents to the OCIP Administrator will result in the Assessment of liquidated damages against the Contractor in the amount of $200 for each Document.

D. Regardless of the insurance program chosen by the Owner, Contractors and subcontractors participating in the project will be expected to comply with the following safety and loss control requirements:

1. All contractors shall identify their contact person(s) to the Contractor.

2. Owner procedures regarding dealing with the media.

3. All construction employees will be required to be attired in workpants, shirt and appropriate boots or closed toe shoes.

4. Controlling access to the construction site will be a very high priority, and contractors will be required to take whatever preventative measure, such as barriers, fencing, etc., as outlined in the contract specifications.

5. Contractors will be required to respond to any Owner complaints about objectionable levels of dust or noise and will be required to provide the appropriate abatement as quickly as possible.

6. Fall protection is mandatory on all projects in accordance with CAL OSHA, OSHA and any other appropriate code.

7. A site specific Injury and Illness Prevention Program shall be available on site with the General or Prime Contractor. All contractors shall abide by this program.

8. Personal radios, headsets, walkmans and CD players are not allowed on the job-site.

9. All contractors must attend the pre-construction safety meeting.

10. No sexual reference or preference shall be permitted on any piece of clothing or the hardhat. Any employee observed disregarding this policy shall be removed from the job site until further notice.

11. All contractors' employees shall park in accordance with the Bridging Documents.

12. All contractors shall control the break time activities of the employees to assure the cleanup of all soda cans, food wrappers, plastic bottles, or food containers from the break area. Such areas shall be cleaned immediately after the break and all waste placed in trash receptacles. No glass containers are permitted on the site.

13. Theft or willful damage to any property of the Owner, or other contractors will be prosecuted fully.

E. Contractors and subcontractors participating in the Kern County BHRS Psychiatric Health Facility project will further be expected to comply with the following safety and loss control requirements:

1. The General or Prime Contractor shall assume overall responsibility for project safety compliance.

2. The Emergency Response Plans (with particular emphasis on access and egress routes).

3. All contractors will agree to conduct and fund post-injury drug screening of their employees. Those employees failing the test will be removed permanently from the job site.

4. The County Representative has the right to instruct the contractor to correct an unsafe act or condition. If the Contractor fails to correct the unsafe act or condition within the requested time frame, the Owner or its representative may have the condition corrected and bill the non-compliant contractor for the costs associated with the correction.

5. The County Representative may require a follow-up meeting or contact if there is a death, serious and willful claim, serious disabling injury, adverse loss experience, major fire, or serious third party claim.

6. Any contractor, subcontractor employee displaying, in the opinion of the Contractor or County representative, a repeated disregard for safety can be removed from the job-site.

F. All contractors will advise those non-English speaking employees in their native language either in a written format or via an interpreter of these policies.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 5723

TEMPORARY STORM WATER POLLUTION CONTROL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. This Section includes all methods and materials to comply with the Project's Storm Water Pollution Prevention Plan (SWPPP), which is required for construction sites with a disturbed area of one or more acres, including construction sites of less than one acre when they are part of a larger common development plan that is equal to or greater than one acre:

1. The County is responsible for obtaining coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWQ and associated amendments, NPDES No. CAS000002 (Construction General Permit). The County will submit the following Project Registration Documents (PRDs) to the State Water Board electronically, using the State Water Board Storm Water Multiple Application and Report Tracking System (SMARTS) as described in Attachment B of the Construction General Permit, hereafter regarded as the CGP. This includes payment of the fee statement generated by SMARTS after PRD submittal.

2. The County will supply the following documents:

   a. Conceptual SWPPP hereafter referred to as the County's SWPPP, prepared by a Qualified SWPPP Developer (QSD) to minimize the discharge of pollutants in stormwater due to construction activities.

   b. Notice of Intent (NOI).

   c. Risk Assessment.

   d. Conceptual Site Map.

   e. WDID.

1.03 ABBREVIATIONS

A. ATS: Advanced Treatment System.

B. BMP: Best Management Practice.

C. CASQA: California Storm water Quality Association.

D. CCR: California Code of Regulations.

E. CGP: Construction General Permit.

F. CSMP: Construction Site Monitoring Program.

G. C-SWPPP: CONTRACTOR's SWPPP.

H. C-WPCP: CONTRACTOR's WPCP.

I. DTSC: Department of Toxic Substance Control.

J. D-SWPPP: COUNTY's SWPPP.

K. D-WPCP: COUNTY's WPCP.

L. EPA: Environmental Protection Agency.

M. ESA: Environmentally Sensitive Area.

N. LRP: Legally Responsible Person.

O. NAL: Numeric Action Level.

P. NEL: Numeric Effluent Limitation.

Q. NOI: Notice of Intent.

R. NOT: Notice of Termination.

S. NPDES: National Pollutant Discharge Elimination System.

T. PRD: Project Registration Document.

U. QSD: Qualified SWPPP Developer.

V. QSP: Qualified SWPPP Practitioner.

W. REAP: Rain Event Action Plan.

X. RWQCB: Regional Water Quality Control Board.

Y. SAP: Sampling and Analysis Plan.

Z. SMARTS: Storm water Multiple Application and Report Tracking System.

AA. SWPPP: Storm Water Pollution Prevention Plan.

BB. SWRCB: State Water Resources Control Board.

CC. WDID: Waste Discharge Identification Number.

DD. WPCD: Water Pollution Control Drawing.

EE. WPCP: Water Pollution Control Program

1.04 ACTION SUBMITTALS

A. Refer to entire section for all the submittal requirements.

B. Construction Site Monitoring Program (CSMP).

C. ATS:

1. ATS Plan.

2. Notice of Discharge Report

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Contractor's **QSP**.

B. Hazardous waste documentation.

C. Rain Event Action Plan(s) (REAP).

D. Storm Water Annual Report.

1.06 QUALITY ASSURANCE

A. QSD Qualifications: Throughout the duration of construction, assign to the Project a QSD with the following training qualifications in accordance with Section VII of the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activity, State Water Resources Control Board (SWRCB) Order No. 2009-0009-DWQ and associated amendments, NPDES No. CAS000002 (Construction General Permit):

1. A person who has attended and passed a State Water Board-sponsored or approved QSD training course.

2. Registered or certified as at least one of the following:

a. California Registered Civil Engineer.

b. California Registered Professional or Engineering Geologist.

c. California Licensed Landscape Architect.

d. Professional American Institute of Hydrology Hydrologist.

e. Certified Professional in Storm Water Quality (CPSWQ)™ registered through Enviro Cert International, Inc.

f. Certified Professional in Erosion and Sediment Control (CPESC)™ registered through Enviro Cert International, Inc.

g. Professional in Erosion and Sediment Control registered through the National Institute for Certification in Engineering Technologies (NICET.

B. QSP Qualifications: Throughout the duration of construction, assign to the Project a QSP with the following training qualifications in accordance with Section VII of the CGP:

1. A person who has attended and passed a State Water Board-sponsored or approved QSP training course.

2. Certified as at least one of the following:

a. Certified Erosion, Sediment and Storm Water Inspector (CESSWI)™ registered through Enviro Cert International, Inc.

b. Certified Inspector of Sediment and Erosion Control (CISEC)™ registered through CISEC, Inc.

c. QSD.

C. Qualified Person Qualifications: Throughout the duration of construction, assign to the Project an appropriately trained individual with at least one of the following training qualifications:

1. Attended and passed a State Water Board-sponsored or approved QSD or QSP training course, or

2. Registered or certified as a:

a. California Registered Civil Engineer.

b. California Registered Professional or Engineering Geologist.

c. California Licensed Landscape Architect.

d. Professional American Institute of Hydrology Hydrologist.

e. Certified Professional in Storm Water Quality (CPSWQ)™ registered through Enviro Cert International, Inc.

f. Certified Professional in Erosion and Sediment Control (CPESC)™ registered through Enviro Cert International, Inc.

g. Professional in Erosion and Sediment Control registered through the National Institute for Certification in Engineering Technologies (NICET).

h. Certified Erosion, Sediment and Storm Water Inspector (CESSWI)™ registered through Enviro Cert International, Inc.

i. Certified Inspector of Sediment and Erosion Control (CISEC)™ registered through CISEC, Inc.

1.07 LAWS, REGULATIONS AND POLICIES

A. The following laws, permits, regulations and Board policies apply to the erosion and sediment transport control requirements described in this Section.

1. Construction General Permit (CGP): National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activity. State Water Resources Control Board (SWRCB) Order No. 2009-0009-DWQ, NPDES No. CAS000002, adopted September 2, 2009 and associated amendments.

2. California Code of Regulations (CCR), Title 23 (Divisions 2 and 4) and Title 24 (Parts 5 and 11).

3. California Regional Water Quality Control Board (RWQCB) Water Quality Control Plan for the Santa Ana Basin (5F).

4. California Statewide General Permit for Waste Discharge Requirements for Discharges from Utility Vaults and Underground Structures to Surface Waters, Order No. 2006-008-DWQ, NPDES No. CAG990002.

5. California RWQCB Central Valley Region, General Waste Discharge Requirements for Discharges of Hydrostatic Test Water and Potable Water to Surface Waters and Storm Drains or Other Conveyance Systems, Order No. R9-2002-0020, NPDES No. CAG679001.

6. California RWQCB Central Valley Region, General Waste Discharge Requirements for Discharges from Groundwater Extraction Waste to Surface Waters within the Central Valley Region, Order No. R9-2008-0002, NPDES No. CAG919002 (Waste Discharge Application/NPDES Permit, Form 200, replacing Order No. R9-2001-96).

7. California RWQCB Central Valley Region, General Waste Discharge Requirements for Discharges from Temporary Groundwater Extraction and Similar Waste Discharges to Storm Drains or Other Conveyance Systems Tributary Thereto, Order No. R9-2007-0034, NPDES No. CAG919001.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Best Management Practices (BMP's) shall be installed and maintained for water pollution control following the guidance of the appropriate BMP Fact Sheet from the CASQA Construction Handbook / Website Portal.

B. BMP's shall be installed and maintained for water pollution control following the guidance of the appropriate BMP Fact Sheet from the CASQA Construction Handbook / Website Portal.

C. Materials needed for the proper installation and operation of BMP's shall comply with the requirements identified on the appropriate CASQA BMP Fact Sheets.

D. Materials used in the installation and operation of an ATS shall be in compliance with Attachment F of the CGP.

2.02 RAIN GAUGES

A. Provide a non-recording rain gauge on the project site and ensure proper positioning to avoid shielding from neighboring buildings, vegetation, etc.

B. Manufacturers: Subject to compliance with requirements, provide one of the following:

1. High Sierra Electronics, Model 2501-00.

2. Belfort Instruments, Model 5-400.

3. Hydrologic Services Pty., Ltd., Standard Model SRG.

4. Or equal.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 6000

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section includes Product Requirements including:

1. Products.

2. Product Options and Substitutions.

3. Product Delivery Requirements.

4. Shipping Requirements.

5. Product Storage and Handling Requirements.

1.03 PRODUCTS

A. Products: New material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.

B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

C. For similar components, provide interchangeable components of the same manufacturer.

1.04 PRODUCT OPTIONS AND SUBSTITUTIONS

A. Summary: This paragraph describes procedures for selecting products and requesting substitutions of unlisted materials in lieu of materials named in the Specifications or Bridging Documents or approved for use in Addenda that were not already the subject of a Document 00 6325 (Substitution Request Form) submittal. For “or equal” items, it is the Design-Build Entity’s responsibility to demonstrate that the items meet all of the requirements by following the Request for Substitution process.

B. "Or Equal" Substitutions: Owner will consider substitution requests only for "or equal" items. If Design-Build Entity wishes to use any "or equal" item, it must submit Request for Substitution (RFS), including all information contained in this Section 01 6000 (Product Requirements) and a fully executed Document 00 6325 (Substitution Request Form), no later than the date indicated in Section 01 1101 (Summary of Work – Design-Build Design Services). After that date, Owner will not accept "or equal" substitution requests. To assess "or equal" acceptability of product or system, submittals of substitutions shall contain the information required in Document 00 6625 and set forth in this Section 01 6000. Insufficient information will be grounds for rejection of substitution. Owner shall, within a reasonable period of time after having received a Request for Substitution, issue in writing its decision as to whether the proposed substitute item is an Equal item. Owner's decision shall be conclusive on Design-Build Entity.

C. Design-Build Entity's Options:

1. For products specified only by reference standard: Select any product meeting that standard.

2. For products specified by naming one or more products or manufacturers:

   a. Select products of any named manufacturer meeting Specifications or Bridging Documents.

   b. If product becomes unavailable due to no fault of Design-Build Entity, submit RFS.

D. Substitutions:

1. Owner will consider Design-Build Entity's substitution requests only when product becomes unavailable due to no fault of Design-Build Entity.

2. Requests for review of proposed substitute items will not be accepted from anyone other than Design-Build Entity. The RFS shall state the extent, if any, to which the evaluation and acceptance of the proposed substitute will prejudice Design-Build Entity's achievement of Substantial Completion on time, and whether or not acceptance of the substitute for use in the Work will require a change in any of the Specifications, Bridging Documents or other Contract Documents (or in the provisions of any other direct contract with Owner for work on the Project).

3. Submit separate RFS (and five copies) for each product and support each request with:

   a. Product identification.

   b. Manufacturer's literature.

   c. Samples, as applicable.

d. Name and address of similar projects on which product has been used, and dates of installation.

e. Name, address, and telephone number of manufacturer's representative or sales engineer.

f. For construction methods: Detailed description of proposed method; drawings illustrating methods.

4. Where required, itemize a comparison of the proposed substitution with product specified and list significant variations including, but not limited to dimensions, weights, service requirements, and functional differences. If variation from product specified is not pointed out in submittal, variation will be rejected even though submittal was favorably reviewed. Identify all variations of the proposed substitute from that specified in the RFS and indicate available maintenance, repair, and replacement service.

5. State whether the substitute will require a change in any of the Contract Documents (or provisions of any other direct contract with Owner for work on the Project) to adapt the design of the proposed substitute, and whether or not incorporation or use of the substitute in connection with Work is subject to payment of any license fee or royalty. Submit data relating to changes in construction schedule.

6. Include accurate cost data comparing proposed substitution with product and amount of net change in Contract Sum including, but not limited to, an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors, Designers and Subcontractors affected by the resulting change, all of which will be considered by Owner in evaluating the proposed substitute. Owner may require Design-Build Entity to furnish additional data about the proposed substitute.

7. Owner will not consider substitutions for acceptance (or, in Owner's sole discretion, Owner may make Design-Build Entity solely responsible for all resulting costs, expenses and other consequences) when a substitution:

   a. Results in delay meeting design or construction Milestones or completion dates.

   b. Is indicated or implied on submittals, including without limitation any design submittals, without formal request from Design-Build Entity.

   c. Is requested directly by a Designer, Subcontractor or supplier.

   d. Acceptance will require substantial revision of Contract Documents.

   e. Disrupts Design-Build Entity's job rhythm or ability to perform efficiently.

8. Substitute products shall not be ordered without written acceptance of Owner.

9. Owner will determine acceptability of proposed substitutions and reserve right to reject proposals due to insufficient information.

10. Accepted substitutions will be evidenced by a Change Order. All Contract Documents requirements apply to Work involving substitutions.

E. Design-Build Entity's Representation and Warranty:

1. Design-Build Entity's RFS constitute a representation and warranty that Design-Build Entity.

a. Has investigated proposed product and determined that it meets or exceeds, in all respects, specified product.

b. Will provide the same warranty for substitution as for specified product.

c. Will coordinate installation and make other changes that may be required for Work to be complete in all respects.

d. Waives claims for additional costs which may subsequently become apparent.

e. Will compensate Owner for additional redesign costs associated with substitution.

f. Will be responsible for Construction Schedule slippage due to substitution.

g. Will be responsible for Construction Schedule delay due to late ordering of available specified products caused by requests for substitution that are subsequently rejected by Owner.

h. Will compensate Owner for all costs; including extra costs of performing Work under Contract Documents, extra cost to other contractors, Designers and Subcontractors, and any claims brought against Owner, caused by late requests for substitutions or late ordering of products.

F. Owner's Duties:

1. Review Design-Build Entity's RFS with reasonable promptness.

2. Notify Design-Build Entity in writing of decision to accept or reject requested substitution.

G. Administrative Requirements:

1. Specified products, materials, or systems for Project may include engineering or on-file standards required by the regulatory agency. Design-Build Entity's substitution of products, materials or systems may require additional engineering, testing, reviews, approvals, assurances, or other information for compliance with regulatory agency requirements or both. Provide all agency approvals or other additional information required and pay additional costs for required Owner services made necessary by the substitution at no increase in Contract Sum or Contract Time, and as a part of substitution proposal.

1.05 PRODUCT DELIVERY REQUIREMENTS

A. Deliver products in accordance with manufacturer's instructions.

B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

1.06 SHIPPING REQUIREMENTS

A. Preparation for Shipment. All equipment shall be suitably packaged to facilitate handling and to protect against damage during transit and storage. All equipment shall be boxed, crated, or otherwise completely enclosed and protected during shipment, handling, and storage. All equipment shall be protected from exposure to the elements and shall be kept dry at all times.

1. Painted and coated surfaces shall be protected against impact, abrasion, discoloration, and other damage. Painted and coated surfaces which are damaged prior to acceptance of equipment shall be repainted to the satisfaction of Owner.

2. Grease and lubricating oil shall be applied to all bearings and similar items.

B. Shipping. Before shipping each item of equipment shall be tagged or marked as identified in the delivery schedule or on the Shop Drawings. Complete packing lists and bills of material shall be included with each shipment.

1.07 PRODUCT STORAGE AND HANDLING REQUIREMENTS

A. Store products only in staging area per provisions of Section 01 1100 (Summary of Work).

B. Handle, store, and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate-controlled enclosures.

C. For exterior storage of fabricated products, place on appropriate supports, above ground.

D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.

E. Store loose granular materials on solid flat surfaces in a well-drained area.

F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

H. Without limiting the foregoing:

1. Design-Build Entity shall bear the responsibility for delivery of equipment, spare parts, special tools, and materials to the Site and shall comply with the requirements specified herein and provide required information concerning the shipment and delivery of the materials specified in Contract Documents. These requirements also apply to any subsuppliers making direct shipments to the Site. Acceptance of the equipment shall be made only after it is installed, tested, placed in operation and found to comply with all the specified requirements.

2. All items shall be checked against packing lists immediately on delivery to the Site for damage and for shortages. Damage and shortages shall be remedied with the minimum of delay.

3. No metalwork (miscellaneous steel shapes and reinforcing steel) shall be stored directly on the ground. Masonry products shall be handled and stored in a manner to hold breakage, chipping, cracking, and spalling to a minimum. Cement, lime, and similar products shall be stored off the ground on pallets and shall be covered and kept completely dry at all times. Pipe fittings and valves may be stored out of doors, but must be placed on wooden blocking. PVC pipe, geomembranes, plastic liner, and other plastic materials shall be stored off the ground on pallets and protected from direct sunlight.

4. Electrical equipment, and all equipment with antifriction or sleeve bearings shall be stored in weathertight structures maintained at a temperature above 60°F. Electrical equipment, controls, and insulation shall be protected against moisture and water damage. All space heaters furnished in equipment shall be connected and operated continuously.

5. Equipment having moving parts such as gears, bearings, and seals, shall be stored fully lubricated with oil, grease, etc., unless otherwise instructed by the manufacturer. Manufacturer’s storage instructions shall be carefully followed by Design-Build Entity.

6. When required by the equipment manufacturer, moving parts shall be rotated a minimum of twice a month to ensure proper lubrication and to avoid metal to metal "welding". Upon installation of the equipment, Design-Build Entity shall, at the discretion of Owner, start the equipment at one-half load for an adequate period of time to ensure that the equipment does not deteriorate from lack of use.

7. When required by the equipment manufacturer, lubricant shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. New lubricants shall be put into the equipment by Design-Build Entity at the time of acceptance.

8. Equipment and materials shall not show any pitting, rust, decay, or other deleterious effects of storage when installed in the Work.

9. In addition to the protection specified for prolonged storage, the packaging of spare units and spare parts shall be for export packing and shall be suitable for long-term storage in a damp location. Each spare item shall be packed separately and shall be completely identified on the outside of the container.

10. Handling. Stored items shall be laid out to facilitate their retrieval for use in the Work. Care shall be taken when removing the equipment for use to ensure the precise piece of equipment is removed and that it is handled in a manner than does not damage the equipment.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 7329

CUTTING AND PATCHING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. This Section establishes General Requirements pertaining to cutting (including excavating), fitting, and patching of the Work required to:

1. Make the several parts fit properly.

2. Uncover Work to provide for installing, inspection, or both, of ill-timed Work.

3. Remove and replace Work not conforming to requirements of the Contract Documents.

4. Remove and replace defective Work.

B. Requirements and limitations for cutting and patching of Work.

1.03 QUALITY ASSURANCE

A. Requirements for Structural Work: Do not cut and patch structural Work in a manner that would result in a reduction of load carrying capacity or of load deflection ration. Obtain approval of the cutting and patching proposal before cutting and patching the following structural elements:

1. Foundation construction.

2. Structural concrete.

3. Miscellaneous structural metals.

4. Equipment supports.

5. Piping, ductwork, vessels and equipment.

B. Operational and Safety Limitations: Do not cut and patch operational elements or safety related components in a manner that would result in a reduction of their capacity to perform in the manner intended, to increase maintenance, or to decrease operational like or safety.

C. Visual Requirements:

1. Do not cut and patch construction exposed on the exterior or in its occupied spaces, without consulting the Engineer / Architect.

2. Remove and replace Work cut and patched in a visually unsatisfactorily manner.

D. Employ skilled workers for cutting and patching. Wherever practicable, employ original installer or fabricator providing Work under this Contract to perform cutting and patching for new:

1. Weather-exposed and moisture-resistant products.

2. Fireproofing.

3. Finished surfaces exposed to view.

E. Individual Product Specification Sections:

1. Cutting and patching incidental to Work of the Section.

2. Advance notification to other Sections of openings required in Work of those Sections.

3. Limitations on cutting structural members.

1.04 SUBMITTALS

A. Submit written request in advance of cutting or alteration which affects:

1. Structural integrity of any element of Project.

2. Integrity of weather exposed or moisture resistant element.

3. Efficiency, maintenance, or safety of any operational element.

4. Visual qualities of sight exposed elements.

5. Work of County or separate contractor.

6. Cost estimate and type of reimbursement review by Architect/Engineer. Review does not waive Architect/Engineer's right to later require complete removal and replacement of any part of Work found to be unsatisfactory.

B. Include in Request:

1. Identification of Project.

2. Location and description of affected Work.

3. Necessity for cutting or alteration.

4. Description of proposed Work, entities to perform Work, products to be used, dates when Work is to be performed.

5. Alternatives to cutting and patching.

6. Effect on Work of County or separate Contractor.

7. Written permission of affected separate Contractor.

8. Describe anticipated results in terms of changes to existing construction.

9. List utilities to be disturbed or relocated or temporarily out of service. Indicate length of service disruption.

10. Where Work involves addition of reinforcement to structural elements, submit details and engineering calculations showing how new reinforcement integrates with original structure.

11. Date and time Work will be executed, to provide for Engineering / Architect observation.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Primary Products: Those required for original installation.

B. Product Substitution: Refer to Section 01 6000.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine existing conditions prior to commencing Work, including elements subject to damage or movement during cutting, excavating, patching and backfilling.

B. After uncovering the Work, inspect conditions affecting of new Work.

C. If uncovered conditions are not as anticipated, immediately notify the Architect/Engineer and secure needed directions.

D. Do not proceed until unsatisfactory conditions are corrected.

E. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Provide required temporary supports including, but not necessarily limited to, shoring, bracing, and support to maintain structural integrity of the Work. Provide devices and methods to protect other portions of Project from damage.

B. Prior to cutting, employ a competent private utility locating service capable of locating positions and depths of underground and concealed structural reinforcements and utilities including, but not limited to electrical conduits, plumbing lines, and other utilities in the vicinity of the construction to be cut.

C. Perform cutting and patching using methods so as not to void existing warranties.

D. Provide protection from elements for areas which may be exposed by uncovering Work.

E. Maintain excavations free of water.

3.03 CUTTING

A. Perform required cutting and fitting to complete the Work under pertinent other Sections of these Specifications.

B. Perform required excavating and backfilling as required under pertinent other Sections of these Specifications.

C. Perform cutting and demolition by methods which will prevent damage to other portions of the Work and provide proper surfaces to receive installation of repair and new Work.

D. Do not cut or alter structural members without prior consultation with the Engineer / Architect unless specifically indicated. Do not damage reinforcing or structural steel to remain.

E. Do not damage electrical conduits, plumbing lines, and other utilities to remain.

F. Cut existing construction to provide for installation of Work. Make new openings neat, as close as possible to profiles indicated and only to extent necessary for new Work.

G. Uncover Work to install improperly sequenced Work.

H. Remove and replace defective or non-conforming Work.

I. Remove samples of installed Work for testing when requested.

J. Provide openings in the Work for penetration of mechanical and electrical Work.

K. At concrete, masonry, paving, and other materials where edges of cuts and holes will remain exposed in the completed Work, make cuts using power-sawing and power-coring equipment; do not overcut at corners of cut openings. Saw overruns shall not be permitted. Pneumatic tools not allowed without prior approval.

L. Upon completion of cutting and coring, clean remaining surfaces of loose particles and dust.

3.04 PATCHING

A. Execute patching to complement adjacent Work.

B. Patch existing construction by filling repairing, refinishing, closing up and similar operations. Patching includes the insertion of projection of other products in or from a surface.

C. Perform fitting and adjusting of products together to integrate with other Work with the specified tolerance and finishes.

D. Perform Work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.

E. Restore Work with new Products in accordance with requirements of Contract Documents.

F. Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

G. Patch weather-exposed components in a manner that restores them to a weathertight condition.

H. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material, to full thickness of the penetrated element.

I. Finish or refinish, as required, cut and patched surfaces to provide an even surface of uniform finish, color, texture, and appearance, matching existing adjacent. Finish complete surface plane, unless otherwise indicated. Over patched wall or ceiling surfaces, finish to nearest cutoff line for entire surface, such as intersection with adjacent wall or ceiling, beam, pilasters or to nearest opening frame, unless otherwise indicated. Finished surfaces shall not present a spotty, touched-up appearance. For an assembly, refinish entire unit.

3.05 PERFORMANCE

A. Execute Work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.

B. Employ original subcontractor to perform cutting and patching for weather exposed and moisture resistant elements.

C. Cut materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

D. Restore Work with new products in accordance with requirements of Contract Documents.

E. Fit Work tightly to pipes, sleeves, ducts, conduit, and other penetrations through surfaces, caulking where necessary to create water and air resistive barriers.

F. At penetrations of fire-rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 8400 (Firestopping / Smoke Seal Systems) and Section 07 900 (Joint Sealers), to full thickness of the penetrated element.

G. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

3.06 PAYMENT FOR COSTS

A. In accordance with Section 00 7253 (General Conditions) and Section 01 2000 (Measure and Payment).

END OF SECTION

SECTION 01 7400

CLEANING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section includes Cleaning including:

1. Progress Cleaning.

2. Final Cleaning.

1.03 SCOPE OF WORK

A. Perform cleaning and disposal work as specified, complete. This Section forms a part of all other Sections of the specifications and will be coordinated with such additional cleaning and disposal requirements as may be specified in other Sections.

1.04 CLEANING, GENERAL

A. Design-Build Entity must at all times keep premises free from accumulations of waste material or rubbish caused by Design-Build Entity's employees or work, or employees or work of subcontractors, and must remove rubbish from and about areas of Work and Design Builder's and subcontractors' tools, scaffolding and surplus materials and must leave the Work "broom clean", or its equivalent, except as hereinafter specified. In case of dispute between Design-Build Entity and subcontractors employed on or about the work areas, as to responsibility for removal of rubbish, etc., or in case debris is not promptly removed as herein required, the County may remove rubbish, etc., and back charge the Design-Build Entity.

B. At all times, Kern County BHRS Psychiatric Health Facility Project working area and site must be kept clean and orderly. Dirt, debris, waste, rubbish and disused implements and equipment must be removed frequently and not allowed to accumulate more than 24 hours. Flammable and toxic materials must not be stored in structures.

1.05 PROGRESS CLEANING

A. General:

1. Clean Kern County BHRS Psychiatric Health Facility site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

2. Comply with requirements in National Fire Protection Association (NFPA) 241 for removal of combustible waste materials and debris.

3. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.

4. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Kern County BHRS Psychiatric Health Facility site free of waste materials and debris.

C. Work Areas:

1. Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

2. Remove liquid spills promptly.

3. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Completion.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

H. Progress Cleaning:

1. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Completion.

2. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

I. Limiting Exposures: Supervise construction operations to assure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

1.06 FINAL CLEANING

A. Within Agreement limits, clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

1. Clean equipment and fixtures to sanitary condition, clean or replace filters of mechanical equipment.

2. Clean roofs, gutters, downspouts and drainage systems.

3. Glass: Clean all glass, interior and exterior, affected by Work of Kern County BHRS Psychiatric Health Facility; including removal of foreign material from glass.

B. Clean site: Sweep paved areas, rake clean other surfaces.

C. Remove waste and surplus materials, rubbish and construction facilities from Kern County BHRS Psychiatric Health Facility and from site.

D. Dust, dirt, stains, hand marks, paint spots, and like defects must be completely removed from surfaces. Metal surfaces must be cleaned, using only non-corrosive and non-abrasive materials.

E. Final Inspection: Deficient cleaning operations, as determined by the County, must be immediately corrected as directed.

1.07 DISPOSAL

A. Under no circumstances will rubbish or waste material be disposed of in site fills or backfills. Debris, rubbish, and waste or surplus material must be removed from the County.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 7419

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous demolition waste.

2. Recycling nonhazardous demolition waste.

3. Disposing of nonhazardous demolition waste.

1.03 DEFINITIONS

A. Class III Landfill: A landfill that accepts non-hazardous waste such as household, commercial, and industrial waste, including construction, remodeling, repair, and demolition operations.

B. Chemical Waste: Includes petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, organic chemicals and inorganic wastes, and other similar materials.

C. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or similar.

D. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

E. Debris: Includes both combustible and noncombustible wastes, such as leaves and tree trimmings that result from construction or maintenance and repair work, and other similar materials.

F. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

G. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

H. Divert: Using material for any purpose other than disposal in a landfill.

I. Inert Fill: A permitted facility that accepts inert waste such as asphalt and concrete exclusively.

J. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

K. Rubbish: Includes both combustible and noncombustible wastes, such as paper, boxes, glass, crockery, metal and lumber scrap, tin cans, bones, and other similar materials.

L. Sanitary Wastes:

1. Garbage: Refuse and scraps resulting from preparation, cooking, distribution, or consumption of food, or other similar materials.

2. Sewage: Domestic sanitary sewage.

1.04 PERFORMANCE REQUIREMENTS

A. General: Achieve end-of-Kern County BHRS Psychiatric Health Facility Design-Build rates for salvage / recycling of a minimum of 75 percent by weight of total non-hazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction waste from landfills and incinerators. Facilitate recycling and salvage of materials, including the following:

1. Construction scrap materials:

a. Concrete.

b. Wood.

c. Steel.

d. Glazing.

e. Gypsum board.

f. Acoustical tile and panels.

g. Carpet.

h. Piping, valves, supports, and hangers.

i. Electrical conduit, supports, and hangers.

j. Wiring.

k. Other materials required or as noted in the Waste Management Plan that will help reach the Project goal.

1.05 ACTION SUBMITTALS

A. Construction Waste Management Plan (CWMP): Submit 3 copies of plan within seven (7) calendar days of date established for the Notice of Award and prior to any waste removal.

1. Update and submit three (3) copies of plan quarterly thereafter.

1.06 INFORMATIONAL SUBMITTALS

A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit three copies of report. Use County approved forms. Include the following information:

1. Material category.

2. Generation point of waste.

3. Total quantity of waste in tons.

4. Quantity of waste salvaged, both estimated and actual in tons.

5. Quantity of waste recycled, both estimated and actual in tons.

6. Total quantity of waste recovered (salvaged plus recycled) in tons.

7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

8. A copy of monthly reports from recycler(s).

B. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

C. Qualification Data: For waste management coordinator and refrigerant recovery technician.

D. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.07 QUALITY ASSURANCE

A. Experienced firm, with a record of successful waste management coordination of projects with similar requirements.

B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

C. Waste Management Conference: Conduct conference at Kern County BHRS Psychiatric Health Facility Site. Review methods and procedures related to waste management including, but not limited to, the following:

1. Review and discuss CWMP including responsibilities of waste management coordinator.

2. Review requirements for documenting quantities of each type of waste and its disposition.

3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.

4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.

5. Review waste management requirements for each trade.

1.08 CONSTRUCTION WASTE MANAGEMENT PLAN (CWMP)

A. General: Develop a CWMP according to ASTM E1609 and requirements of this Section. Plan will consist of waste identification, waste reduction work plan, and cost / revenue analysis. Indicate quantities by weight. Convert quantities measured in volume to equivalent weight using equivalency table accepted by the USGBC or the California Integrated Waste Management Board (CIWMB). Obtain prior acceptance of CIWMB tables from USGBC.

B. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing and construction waste generated by the Work. Use County approved Form. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Use county approved Form. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.

2. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, telephone number, and a copy of the permit or license of each landfill and incinerator facility. The permit or license must indicate the type or class of waste accepted.

3. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on site where materials separation will be located.

D. Cost / Revenue Analysis: Indicate total cost of waste disposal as if there was no CWMP and net additional cost or net savings resulting from implementing CWMP. Use County approved Form. Include the following:

1. Total quantity of waste.

2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.

3. Total cost of disposal (with no CWMP).

4. Revenue from recycled materials.

5. Proposed rebate programs that will be captured.

6. Savings in hauling and tipping fees by donating materials.

7. Savings in hauling and tipping fees that are avoided.

8. Handling and transportation costs. Include cost of collection containers for each type of waste.

9. Net additional cost or net savings from waste management plan.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.01 PLAN IMPLEMENTATION

A. General: Implement the approved CWMP. Provide handling, containers, storage, signage, transportation, and other items as required to implement the CWMP during the entire duration of the Agreement.

1. Comply with Section 01 5000 for operation, termination, and removal requirements.

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of the CWMP. Coordinator must be present at the site full-time for duration of the Project.

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures.

1. Distribute the CWMP to everyone concerned within three days of submittal return.

2. Distribute the CWMP to entities when they first begin work on site. Review the CWMP procedures and locations established for salvage, recycling, and disposal.

3. Provide information and training updates throughout the construction process as needed to facilitate understanding and participation.

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used sites.

1. Designate and label specific areas on the site necessary for separating materials that are to be recycled.

2. Comply with Section 01 5000 for controlling dust and dirt, environmental protection, and noise control.

3.02 RECYCLING, DEMOLITION, AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Receivers and Processors: Design Builder to use commercially available recyclers as required.

C. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials will accrue to Design Builder.

D. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

E. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Locate containers and / or bins in areas designated in the CWMP. Separate recyclable waste by type on site to the maximum extent practical according to the approved CWMP.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from the site. Include list of acceptable and unacceptable materials at each container and bin.

a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.

4. Store components off the ground and protect from the weather.

5. Remove recyclable waste off County property and transport to recycling receiver or processor.

3.03 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.

2. Polystyrene Packaging: Separate and bag materials.

3. Pallets: As much as possible, require deliveries using pallets to remove pallets from the site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.

4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Site-Clearing Wastes: Chip brush, branches, and trees off site.

C. Wood Materials: Grind or chip into small pieces off site.

D. Gypsum Board: Recycle or dispose as appropriate.

3.04 DISPOSAL OF WASTE

A. General: Except for items or materials to be recycled, remove waste materials from the site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.

2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off County property and legally dispose of them.

END OF SECTION

SECTION 01 7700

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section Includes Administrative and procedural requirements for Contract closeout, including, but not limited to, the following:

1. Design-Build Entity Punch List.

2. County Punch List.

3. Completion.

4. Acceptance.

1.03 DESIGN-BUILD ENTITY PUNCH LIST

A. Design-Build Entity must prepare its compressive punch list and declare the Work is complete prior to requesting punch list inspection by the County. Design-Build Entity must submit three paper copies and one electronic copy of its punch list to the County.

1. Punch list must identify items noted by each of the Design-Build Entity's engineering and architectural disciplines.

2. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Design-Build Entity that are outside the limits of construction.

3. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.

4. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

5. Include the following information at the top of each page:

   a. Project name.

   b. Date.

   c. Name of Construction Manager.

   d. Name of Design-Build Entity.

   e. Page number, of total pages.

1.04 COUNTY PUNCH LIST

A. Design-Build Entity must submit a request for Final Inspection. The County will review the work, and all reports, documents, warranties, guarantees, certificates, and releases. Design-Build Entity must make the following deliverables available for review prior to Completion. Upon review and approval by the County, the Design-Build Entity must submit the approved final deliverables in the required amounts as Stated in the Contract Documents.

   1. Daily Inspection Reports.

   2. Independent Laboratory's Test and Inspection Reports.

   3. Public Utility Acceptance Reports.

   4. State Inspection Reports, including but not limited to acceptance by the Regional Air Quality Management District.

   5. County Inspection Reports, including but not limited to acceptance by the County Fire Marshal, County Health Department and County Public Works.

   6. Visitor Observation Reports.

   7. Product Manufacturers Inspection Reports.

   8. Design-Build Entity Punchlist including status of correction.

   9. Advise County of pending insurance changeover requirements.

   10. Submittal of binders for all warranties, workmanship bonds, maintenance service agreements, certifications, and similar documents.

   11. Submit releases permitting County unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases and Project Design Build Record Documents.

   12. Submit damage or settlement surveys, property surveys, and similar record information.

13. Deliver tools, spare parts, extra materials/stock, and similar items to location designated by the County. Label with manufacturer's name and model number where applicable.

14. Changeover in security provisions.

15. Completion startup testing of systems log.

16. Submit test/adjust/balance records.

17. Submit commissioning and functional testing logs.

18. Changeover in heat and other utilities.

19. Submit information for use, operation, and maintenance of area and equipment.

20. Submit pest-control inspection report and warranty.

21. Submit Section 01 7900 (Demonstration and Training) Demonstration and Training Manuals, DVD’s and copies of attendance certificates.

22. Submit Section 01 7419 (Construction Waste Management) Construction Waste Management Report.

23. Submit Section 01 3232 (Photographic Documentation) Photographic Documentation.

24. Submit Section 01 7839 (Project Record Documents) Project Record Documents.

B. The County will perform the Final Inspection and issue a Punchlist. When all work has been completed as identified on the Design-Build Entity and or County Punch lists, Design-Build Entity will request a re-inspection. The results of the re-inspection will form the basis of requirements for Completion.

C. Re-inspection procedure: The County will re-inspect the work upon receipt of notice that the Work, including inspection list items from earlier inspections, have been completed, except items for which completion has been delayed because of circumstances acceptable to the County.

1. Upon completion of re-inspection, the County will prepare a Certificate of Acceptance, or advise the Design-Build Entity of work that is incomplete or of obligations that have not been fulfilled but are required for Acceptance.

2. If necessary, re-inspection will be repeated.

1.05 COMPLETION

A. Preliminary procedures: Before requesting inspection for Completion, complete the following. List all exceptions in the request.

1. In the application for payment that coincides with, or first follows the date Completion is claimed, show 100 percent completion for the portion of the work claimed as complete. Include supporting documentation for completion as indicated in the Contract Documents and a Statement showing an accounting of changes to the Stipulated Sum.

    a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons why the Work is not complete.

2. Advise County of pending insurance change-over requirements.

3. Submit drafts of all warranties, workmanship bonds, maintenance agreements, final certifications and similar documents to the County before execution. Such items shall not detract from or confuse requirements or interpretations of Contract Documents. Final warranties shall be signed by manufacturers and, where specified, be countersigned by applicable installers and Subcontractors.

4. Obtain and submit releases so the County can have unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates and similar releases.

5. Submit record documents, maintenance manuals, final Project photographs, damage or settlement survey, property survey, and similar final record information per Section 01 7839 (Project Record Documents).

6. Make final change-over of permanent locks and transmit keys to the County. Advise the County's personnel of change-over in security provisions.

7. Complete start-up testing of systems, and instruction of the County's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, materials, equipment and similar elements.

8. Repair damage caused by installation or use of temporary facilities, and restore permanent facilities used during construction to specified condition

9. Complete final clean-up per Section 01 7400 (Cleaning).

10. Touch-up, including touch-up painting and otherwise repair and restore marred exposed finishes.

B. Inspection procedures: Upon receipt of a request for inspection, the County will either proceed with inspection or advise the Design-Build Entity of unfulfilled requirements. The County will prepare the Certificate of Final Completion following inspection, or advise the Design-Build Entity of construction that must be completed or corrected before the certificate will be issued.

1. The County will repeat inspection when requested and assured that the Work has been completed.

2. Results of the completed inspection will form the basis of requirements for Acceptance.

C. Warranty of Title:

1. No material, supplies, or equipment for Work under the Contract shall be purchased subject to any chattel mortgage, security agreement, or under a conditional sale or other agreement by which an interest therein or any part thereof is retained by seller or supplier. The Design-Build Entity warrants good title to all material, supplies, and equipment installed or incorporated in the Work and agrees upon completion of all the Work to deliver the premises, together with improvements and appurtenances constructed or placed thereon by Design-Build Entity, to the County free from any claim, liens, security interest, or charges, and further agrees that neither the Design-Build Entity nor any person, firm, or corporation furnishing any labor, materials or services for any Work covered by the Contract shall have right to lien upon the premises or improvement or appurtenances thereon. Nothing contained in this paragraph, however, shall defeat or impair right of persons furnishing labor, services or materials under bond given by the Design-Build Entity for their protection or any rights under law permitting persons to look to funds due the Design-Build Entity in hands of the County.

1.06 ACCEPTANCE

A. Before requesting Final Inspection for Certification of Acceptance and final payment, complete the following.

1. Preliminary procedures: List exceptions in the request.

a. Submit final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required per Contract Requirements.

b. Submit an updated final Statement, accounting for final additional changes to the Stipulated Sum.

c. Submit a certified copy of the County's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for Acceptance and the list has been endorsed and dated by the County.

d. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Completion, or when the County took possession of and responsibility for corresponding portions of the Work.

e. Submit consent of surety to final payment.

f. Submit a final liquidated damages settlement Statement, when applicable.

g. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Final Adjustments of Accounts

1. Submit a final statement of accounting to the County, showing all adjustments to the Contract Sum and complete and execute Document 00 6530 (Agreement and Release of Any and All Claims).

2. If so required, the County shall prepare a final Change Order for submittal to Design-Build Entity, showing adjustments to the Contract Sum that were not previously made into a Contract Modification.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 7823

OPERATIONS AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section Includes Administrative and procedural requirements for preparing operations and maintenance manuals, including the following:

1. Operations and Maintenance Documentation Directory.

2. Emergency Manuals.

3. Operations Manuals for Systems, Subsystems, and Equipment.

4. Maintenance Manuals for the Care and Maintenance of Products, Materials and Finishes, Systems, and Equipment.

1.03 DEFINITIONS

A. O&M Manual or Manual: Any operations manual, maintenance manual, emergency manual, or directory, described in this Section 01 7823 or other applicable portion of Contract Documents.

B. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

C. Subsystem: A portion of a system with characteristics similar to a system.

1.04 REQUIREMENTS

A. Content and Form all Operations and Maintenance (O&M) Manuals:

1. The specific content and format requirements for all O&M manuals are detailed herein, under Products, Part 2, and in the individual Specifications.

2. The O&M Manuals will be submitted in both hard copy and electronic form.

3. The electronic form will be compiled in the most current form of Adobe Acrobat, Release 7.0 or better.

4. The electronic file will be bookmarked according to its Table of Contents, but will contain no less than the book marking identification in descending order of section, system, subsystem, equipment, component, etc., where applicable.

5. All manual documents must be word searchable, scanned images of text will not be acceptable.

6. The goal is to make the manuals both manageable and user friendly for the County's use.

B. Design-Build Entity Design Team Contribution. The Design-Build Entity will include, in the beginning of each O&M manual, a separate section describing the systems, including:

1. The Basis of Design narrative prepared by the Design-Build Entity's Designers, updated to as-built status by the Designers.

2. Simplified, professionally-drawn, single-line system diagrams on 8-1/2-inch x 11-inch or 11-inch x 17-inch sheets. These must include chillers, water system, condenser water system, heating system, supply air systems, exhaust systems etc. These must show major pieces of equipment such as pumps, chillers, boilers, control valves, expansion tanks, coils, service valves, electrical distribution and controls systems, etc.

C. County Review and Approval: Prior to completion, the County will review the O&M manuals, documentation, and redlined as-builts to verify compliance with the Performance Criteria and other applicable Contract Documents (including Bridging Documents). The County will also review each equipment warranty to verify that all requirements to keep the warranty valid are clearly stated. The County will communicate observed deficiencies to the Design-Build Entity for correction, but no County review or failure to observe deficiencies or request corrections will limit any other Design-Build Entity obligation under Contract Documents.

1.05 SUBMITTALS

A. Initial Submittal:

1. Prepare and submit two (2) draft copies of each manual (emergency, operations, maintenance, and directory) within sixty (60) days following completion of the construction phase submittal process, but in no case later than one hundred and twenty (120) days prior to completion. The drafts will be reviewed, approved, and corrections noted where applicable by the County.

2. The County will also mark on draft directories whether general scope and content are acceptable.

B. Final Submittal:

1. Following a satisfactory approval of the draft by the County, submit two copies of each manual in final form at least sixty (60) days before completion. The County will return one copy with any further comments within thirty (30) days before completion.

2. Correct or modify each manual to comply with the County's comments. Submit 3 copies of each corrected manual and two copies on CD-R of the electronic file(s) of the corrected manual within fifteen (15) days of receipt of the County's comments and prior to the commencement of any training related activities.

1.06 COORDINATION

A. General: Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.01 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

A. Operations and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to each type of manual, including without limitation emergency, operations, and maintenance manuals.

B. Organization; include a Section in the directory for each of the following:

1. Master table of contents for directory.

2. List of contacts.

3. List of systems and subsystems.

4. List of equipment.

5. Tables of contents.

C. List of Contacts: List systems/equipment contacts; list by system, alphabetically.

D. List of Systems and Subsystems: List systems alphabetically. Include references to operations and maintenance manuals that contain information about each system.

E. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.

F. Tables of Contents: Include every table of contents for each emergency, operation and maintenance manual.

G. Identification: In the documentation directory and in each operations and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Construction Documents. If no designation exists, assign a designation according to American Society of Heating Refrigerating & Air Conditioning Engineers (ASHRAE) Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.02 MANUALS, GENERAL

A. Organization:

1. Unless otherwise required, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system.

2. Each manual must contain the following materials, in the order listed:

a. Title page.

b. Table of contents.

c. Manual contents.

B. Title Page; Enclose title page in transparent plastic sleeve. Include the following information:

1. Subject matter included in manual.

2. Name and address of Kern County BHRS Psychiatric Health Facility.

3. Date of submittal.

4. Name, address, and telephone number of Design-Build Entity.

5. Cross-reference to related systems in other operations and maintenance manuals.

C. Table of Contents:

1. List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in final Contract Documents.

2. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents:

1. Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

2. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf D-ring binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-inch by 11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

   a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.

   b. Identify each binder on front and spine, with printed title "OPERATIONS AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number (and volume count) for multiple-volume sets.

3. Dividers: Heavy-paper dividers with plastic-covered tabs for each Section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the Section on each divider, cross-referenced to Specification Section number and title of Contract Documents.

4. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.

5. Supplementary Text: Prepared on 8-1/2-inch by 11-inch white bond paper.

6. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

   a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.

   b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

E. Manufacturers' Data:

1. Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Construction Documents. Identify data applicable to the Work and delete references to information not applicable.

2. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

F. Drawings:

1. Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Project Record Drawings to ensure correct illustration of completed installation.

2. Do not use original Kern County BHRS Psychiatric Health Facility Project Record Documents as part of operation and maintenance manuals.

3. Comply with requirements of newly prepared Record Drawings in Section 01 7839 (Project Record Documents).

2.03 OPERATIONS MANUALS

A. Operations and Maintenance Manuals:

1. Assemble a complete set of operations and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

2. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.

3. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by the County.

4. Prepare a recommended general overall preventative maintenance manual and include a schedule for use by the County.

B. Content; in addition to requirements in this Section, include operations data required in individual Specification Sections and the following information:

1. Contacts:

a. List names.

b. Addresses.

c. Phone numbers (direct contact, where possible).

d. Email addresses.

2. System, subsystem, and equipment descriptions.

3. Performance and design requirement if Design-Build Entity is delegated design responsibility.

4. Operating standards.

5. Operating procedures.

6. Operating logs.

7. Wiring diagrams.

8. Control diagrams.

9. Piped system diagrams.

10. Precautions against improper use.

11. License requirements including inspection and renewal dates.

C. Descriptions; include the following:

1. Product name and model number.

2. Manufacturer's name.

3. Equipment identification with serial number of each component.

4. Equipment function.

5. Operating characteristics.

6. Limiting conditions.

7. Performance curves.

8. Engineering data and tests.

9. Complete nomenclature and number of replacement parts.

D. Operating Procedures; include the following, as applicable:

1. Startup procedures.

2. Equipment or system break-in procedures.

3. Routine and normal operating instructions.

4. Regulation and control procedures.

5. Instructions on stopping.

6. Normal shutdown instructions.

7. Seasonal and weekend operating instructions.

8. Required sequences for electric or electronic systems.

9. Special operating instructions and procedures.

E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

F. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.04 PRODUCT MAINTENANCE MANUALS

A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

C. Source Information: List each product included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Contract Documents.

D. Product Information; include the following, as applicable:

1. Product name and model number.

2. Manufacturer's name.

3. Color, pattern, and texture.

4. Material and chemical composition.

5. Reordering information for specially manufactured products.

E. Maintenance Procedures; include manufacturer's written recommendations and the following:

1. Inspection procedures.

2. Types of cleaning agents to be used and methods of cleaning.

3. List of cleaning agents and methods of cleaning detrimental to product.

4. Schedule for routine cleaning and maintenance.

5. Repair instructions.

F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

G. Warranties and Bonds:

1. Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2. Include procedures to follow and required notifications for warranty claims.

2.05 MAINTENANCE MANUAL INFORMATION FOR SYSTEMS AND EQUIPMENT

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Contract Documents.

C. Manufacturers' Maintenance Documentation including the following information for each component part or piece of equipment:

1. Standard printed maintenance instructions and bulletins.

2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.

3. Identification and nomenclature of parts and components.

4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures:

1. Include the following information and items that detail essential maintenance procedures:

a. Test and inspection instructions.

b. Troubleshooting guide.

c. Precautions against improper maintenance.

2. Disassembly; component removal, repair, and replacement; and reassembly instructions.

3. Aligning, adjusting, and checking instructions.

4. Demonstration and training videotape, if available.

E. Maintenance and Service Schedules:

1. Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

2. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.

3. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds:

1. Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 7839

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Section Includes administrative and procedural requirements for Project Record Documents.

B. Project Record Documents required include:

1. Marked-up copies of Drawings
2. Marked-up copies of Shop Drawings
3. Newly prepared Drawings
4. Marked-up copies of Specifications, Addenda, Change Orders and CCDs
5. Marked-up Product Data submittals
6. Record Samples
7. Field records for variable and concealed conditions
8. Record information on Work that is recorded only schematically

C. Specific Project Record Documents requirements that expand requirements of this Section may be included in individual Sections of Divisions 02 through 33.

D. Also comply with all As-Built BIM and related requirements under Section 01 3554 (BIM Requirements).

E. General Project closeout requirements are included in Section 01 7700 (Closeout Procedures).

F. Maintenance of Documents and Samples:

1. Store Project Record Documents and Samples in the field office apart from Contract Documents used for construction.

2. Do not permit Project Record Documents to be used for construction purposes.

3. Maintain Project Record Documents in good order and in a clean, dry, legible condition.

4. Make Documents and Samples available at all times for inspection by Owner.

1.03 PROJECT RECORD DRAWINGS

A. Mark-up Procedure: During the construction period, maintain a set of blueline or blackline prints of Contract (final) Drawings and Shop Drawings for Project Record Documents purposes. Label each document (on first sheet or page) “PROJECT RECORD” in 2-inch high printed letters. Keep record documents current. Note: A reference by number to a Change Order, CCD, RFI, RFQ, RFP, Field Order or other such document is not acceptable as sufficient record information on any record document. Do not permanently conceal any Work until required information has been recorded.

1. Mark these Drawings to indicate the actual installation where the installation varies appreciably from the installation shown originally. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later. Items required to be marked include but are not limited to:

   a. Dimensional changes to the Drawings

   b. Revisions to details shown on the Drawings

   c. Depths of various elements of foundation in relation to main floor level or survey datum

   d. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements

   e. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure

   f. Locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stub outs, invert elevations, and similar items

   g. Actual numbering of each electrical circuit

   h. Field changes of dimension and detail

   i. Revisions to routing of piping and conduits

j. Revisions to electrical circuitry

k. Actual equipment locations

l. Duct size and routing

m. Changes made by Change Order or CCD

n. Details not on original Contract Drawings

2. Mark completely and accurately Project Record Drawing prints of Contract Drawings or Shop Drawings, whichever is the most capable of showing actual physical conditions. Where Shop Drawings are marked, show cross-reference on Contract Drawings location.

3. Mark Project Record Drawing sets with red, erasable colored pencil; use other colors to distinguish between changes for different categories of the Work at the same location.

4. Mark important additional information that was either shown schematically or omitted from original Drawings.

5. Note CCD numbers; alternate numbers, Change Order numbers, and similar identification.

6. Responsibility for Mark-up: Where feasible, the individual or entity who obtained Project Record Drawing data, whether the individual or entity is the installer, Subcontractor, or similar entity, is required to prepare the mark-up on Project Record Drawings.

a. Accurately record information in an understandable and legible drawing technique.

b. Record data as soon as possible after it has been obtained. In the case of concealed installations, record and check the mark-up prior to concealment.

B. Preparation of Record Drawings: Immediately prior to inspection for Certification of Substantial Completion, review completed marked-up Project Record Drawings with Owner. When authorized, prepare a full set of correct transparencies of Contract Drawings and Shop Drawings.

1. Incorporate changes and additional information previously marked on print sets. Erase, redraw, and add details and notations where applicable. Identify and date each Drawing; include the printed designation “PROJECT RECORD DRAWING” in a prominent location on each Drawing.

2. Refer instances of uncertainty to Owner for resolution.

3. Distribution: Whether or not changes and additional information were recorded, organize and bind original marked-up set of prints that were maintained during the construction period into manageable sets. Bind the set with durable paper cover sheets, with appropriate identification, including titles, dates, and other information on cover sheets.

C. Distribution of Marked-Up Drawings: Submit the marked-up Project Record Drawings set to Owner for Owner's records.

D. Shop Drawings and Samples: Maintain as record documents; legibly annotate Shop Drawings and Samples to record changes made after review.

E. In addition to requirements of this Section, comply with any supplemental requirements of Divisions 02 through 33.

1.04 PROJECT RECORD SPECIFICATIONS

A. During the construction period, maintain one copy of the Project Specifications, including addenda and modifications issued, for Project Record Documents purposes.

B. Mark the Project Record Specifications to indicate the actual installation, where the installation varies substantially from that indicated in Specifications and Modifications issued. Note related Project Record Drawing information, where applicable. Give particular attention to substitutions, selection of product options, Change Order and Construction Change Directive work, and information on concealed installation that would be difficult to identify or measure and record later.

1. In each Specification Section where products, materials or units of equipment are specified or scheduled, mark the copy with the proprietary name and model number of the product furnished.

2. Record the name of the manufacturer, catalog number, supplier and installer, and other information necessary to provide a record of selections made and to document coordination with Project Record Product Data submittals and maintenance manuals.

3. Note related Project Record Product Data, where applicable, for each principal product specified, indicate whether Project Record Product Data has been submitted in maintenance manual instead of submitted as Project Record Product Data.

4. Upon completion of mark-up, submit Project Record Specifications to Owner for Owner's records.

1.05 ADDITIONAL REQUIREMENTS FOR FINAL PROJECT RECORD DOCUMENTS

A. Note all changes for the final Project Record Documents and provide one set of mylar reproducibles, one set of revised Specifications and one set of disks or CDs to be submitted to Owner.

B. After Substantial Completion and before Final Completion, carefully transfer all data shown on the job set of Record Drawings to the corresponding computer files, coordinating the information as required.

C. Clearly indicate at each affected detail and other drawings a full description of changes made during construction, and the actual location of items as previously specified.

D. “Cloud” all affected areas.

E. Stamp each Record Drawing with the following information:

1. Project Record Document.

2. Prepared by: Design-Build Entity’s name, permanent address.

3. Date prepared.

4. Design-Build Entity’s signature.

5. Owner Contract Number.

1.06 PROJECT RECORD PRODUCT DATA

A. During the construction period, maintain one copy of each Project Record Product Data submittal for Project Record Document purposes.

1. Mark Project Record Product Data to indicate the actual product installation where the installation varies substantially from that indicated in Project Record Product Data submitted. Include significant changes in the product delivered to the Site, and changes in manufacturer’s instructions and recommendations for installation.

2. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

3. Note related Change Orders and mark-up of Project Record Drawings, where applicable.

4. Upon completion of mark-up, submit a complete set of Project Record Product Data to Owner for Owner’s records.

5. Where Project Record Product Data is required as part of maintenance manuals, submit marked-up Project Record Product Data as an insert in the manual, instead of submittal as Project Record Product Data.

6. Design-Build Entity is responsible for mark-up and submittal of Project Record Product Data for its own Work.

B. Material, Equipment, and Finish Data:

1. Provide data for primary materials, equipment and finishes as required under each Specification Section.

2. Submit two sets prior to final inspection, bound in 8-1/2 inches by 11 inches three-ring binders with durable plastic covers; provide typewritten table of contents for each volume.

3. Arrange by Specification Section number and give names, addresses, and telephone numbers of Subcontractors and suppliers. List:

a. Trade names.

b. Model or type numbers.

c. Assembly diagrams.

d. Operating instructions.

e. Cleaning instructions.

f. Maintenance instructions.

g. Recommended spare parts.

h. Product data.

1.07 MISCELLANEOUS PROJECT RECORD SUBMITTALS

A. Refer to Bridging Documents and other Specification Sections for miscellaneous record keeping requirements and submittals in connection with various construction activities. Immediately prior to Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for use and reference. Submit to the Owner for Owner's records. Categories of requirements resulting in miscellaneous records include, but are not limited to, the following:

1. Field records on excavations and foundations

2. Field records on underground construction and similar work

3. Survey showing locations and elevations of underground lines

4. Invert elevations of drainage piping

5. Surveys establishing building lines and levels

6. Ambient and substrate condition tests

7. Certifications received in lieu of labels on bulk products

8. Batch mixing and bulk delivery records

9. Testing and qualification of tradespersons

10. Documented qualification of installation firms

11. Load and performance testing

12. Inspections and certifications by governing authorities

13. Leakage and water-penetration tests

14. Fire resistance and flame spread test results

15. Final inspection and correction procedures

1.08 RECORDING

A. Post changes and modifications to the Contract Documents as they occur. Do not wait until the end of the Project. Owner may periodically review Project Record Documents to assure compliance with this requirement.

1.09 SUBMITTAL

A. Refer to Section 01 3300 (Submittals) for submittal procedures.

B. At completion of Project, deliver Project Record Documents to Owner.

C. Accompany submittal with transmittal letter containing:

1. Date

2. Project title and number

3. Design-Build Entity's name and address

4. Number and title of each Project Record Document

5. Certification that each document as submitted is complete and accurate, and signature of Design-Build Entity or Design-Build Entity's authorized representative.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 7900

DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. Administrative and procedural requirements for instructing the County, including the following:

1. Demonstration of operation of systems, subsystems and equipment.

2. Training in operation and maintenance of systems, subsystems and equipment.

3. Demonstration and training Interactive Digital Video Display (DVD).

4. Special requirements for mechanical equipment training.

1.03 SUBMITTALS

A. Refer to Section 01 3300 (Submittals) for submittal procedures.

B. Instruction Program:

1. Submit two copies of outline of instructional program for demonstration and training, including: the agenda for the training; a schedule of proposed dates and times; length of instruction time for each section of training, and instructors' names for each training module. Include learning objective and outline for each training module. Each training submittal must be provided a minimum of three weeks before the proposed training date.

2. Complete the Training Orientation Plan and Training Agenda forms for each training session to be conducted. Submit to the County no later than sixty (60) days before training begins.

3. At completion of training, submit two complete training manual(s) in both paper and electronic format for the County's use. Electronic format to be word searchable.

C. Qualification Data: For facilitator, instructor, and videographer.

D. Attendance Record:

1. For each training module, submit list of participants and length of instruction time.

2. Complete the Training Record form included for each training session conducted. Submit to the County within seven (7) calendar days of each session being completed.

E. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

F. Demonstration and Training Interactive DVDs:

1. Submit two copies within seven (7) calendar days of end of each training module.

2. Identification: On each copy, provide an applied label with the following information:

a. Name of Project.

b. Name and address of videographer.

c. Name of Design-Build Entity and Construction Manager.

d. Name of Design-Build Entity.

e. Date Interactive DVD was recorded.

f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

3. Transcript: Prepared on 8-1/2-inch by 11-inch paper, punched and bound in heavy- duty, 3-ring, vinyl-covered binders. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding Interactive DVD. Include name of Project and date of Interactive DVD on each page. Include copy of relevant DVD in plastic sleeve.

G. Training Planning, Agenda, and Record Forms:

1. Forms follow on subsequent pages.

a. Overall Staff Training and Orientation Plan (one page).

b. Training and Orientation Agenda (two pages).

c. Staff Training and Orientation Record (one page).

Overall Staff Training and Orientation Plan

Project: Kern County BHRS Psychiatric Health Facility Date:_____ Prepared by:_____
(To be filled out by the Commissioning Authority in consultation with the County)

Equipment / System	Spec Section	Total Hours (if spec'd)	Scope Code [5]	Trainee Type [6] (list no. of ea.)	Primary Responsible Party	Trainers' Company	Agenda Recv'd?	Planned Training Date(s)
Mechanical / HVAC								
Electrical								
Re-Commissioning[1]								
Architect[2]								
Mechanical Designer[3]								
Electrical Designer[4]								

[1]**Re-commissioning.** The Commissioning Authority will provide instruction on the use of blank functional test forms for periodic re-commissioning of equipment and systems, per the specification.
[2]**Architect.** The Design-Builder's architect will provide a general overview of the facility, its use, special features, tenant and public considerations, etc.
[3]**Mechanical Design Engineer.** The mechanical designer will provide an overview of the major systems and equipment in the facility, including for each system: the design intent, why the system was chosen, an overview of its operation, and interactions with other systems, any special areas to be aware of, issues regarding future expansion and remodeling, etc.
[4]**Electrical Design Engineer.** The electrical designer will provide an overview of the major electrical systems and equipment in the facility, particularly the lighting control systems, fire alarm, security and emergency power, focusing on the design intent, why the sys-tem was chosen, an overview of its operation, and interactions with other systems, any special areas to be aware of, issues regarding future expansion and remodeling, etc.
[5]**General Scope Codes** (refer to the specifications and to the specific equipment Training Agenda for additional details)
A Provide an ***overview*** of the purpose and operation of this equipment, including required interactions of trainees with the equipment.
B At an ***intermediate level***, provide technical information regarding the purpose, operation and maintenance of this equipment, expecting that serious malfunctions will be addressed by factory reps.
C At a ***very technical level****,* provide information regarding the purpose, operation, troubleshooting and maintenance of this equipment, expecting that almost all operation, service and repair will be provided by the trainees.
[6]**Trainee Types** FM = facility manager, FE = facility engineer and assistants, FT = facility technician / maintenance, PM = project manager, T=tenants, O = other
*CSCI = County supplied, Design-Build Entity installed

TRAINING AND ORIENTATION AGENDA

Project: **Kern County BHRS Psychiatric Health Facility** Date: _____

Equipment / System: Spec Section: _____

Section 1 - Audience and General Scope *[County and Commissioning Authority fill out this section and transmit entire form to the responsible party. Attach training specification section]*

Intended Audience Type *(enter number of staff)*

___Facility Manager(s), ___Facility Engineer(s), ___Facility Technician(s), ___Project Manager(s), ___Tenant(s), ___Other:_____

General Objectives and Scope of Training: *(check all that apply)*

____ A. Provide an overview of the purpose and operation of this equipment, including required interactions of trainees with the equipment.

____ B. Provide technical information regarding the purpose, operation and maintenance of this equipment at an intermediate level, expecting that all serious malfunctions will be addressed by factory representatives.

____ C. Provide technical information regarding the purpose, operation, troubleshooting and maintenance of this equipment at a very detailed level, expecting that almost all operation, service and repair will be provided by the trainees.

Section 2 - Instructors *[Commissioning Authority fills in Company. Trainer fills out the balance, prior to training.]*

ID	Trainer	Company	Position / Qualifications
1)	_____	_____	_____
2)	_____	_____	_____
3)	_____	_____	_____

Section 3 - Agenda *[The responsible parties will have their trainers fill out this section and submit it to the County and Commissioning Authority for review and approval prior to conducting training.]*

Location: ___ Site _____ Date _____

Classroom (location) _____ Date _____

Agenda of general subjects covered (√ all that will be covered)	(√ when completed)	Duration (min.)	Instructor (ID)	Completed (√)
____ General purpose of this system or equipment (design intent)		_____	_____	
____ Review of control drawings and schematics (have copies for attendees)		_____	_____	
____ Startup, loading, normal operation, unloading, shutdown, unoccupied operation, seasonal changeover, etc., as applicable		_____	_____	
____ Integral controls (packaged): programming, troubleshooting, alarms, manual operation		_____	_____	
____ Building automation controls (BAS): programming, troubleshooting, alarms, manual operation, interface with integral controls		_____	_____	
____ Interactions with other systems, operation during power outage and fire		_____	_____	
____ Relevant health and safety issues and concerns and special safety features		_____	_____	
____ Energy conserving operation and strategies		_____	_____	
____ Any special issues to maintain warranty		_____	_____	
____ Common troubleshooting issues and methods, control system warnings and error messages, including using the control system for diagnostics		_____	_____	
____ Special requirements of tenants for this equipment's function		_____	_____	
____ Service, maintenance, and preventative maintenance (sources, spare parts inventory, special tools, etc.)		_____	_____	
____ Question and answer period		_____	_____	

Other subjects covered, specific to the equipment:	**Duration Completed**	**Instructor**

Total duration of training (hrs) ---------->

Training methods that will be included (clarify, as needed): *(Trainer, check all that apply)*

Use of the O&M manuals, illustrating where the verbal training information is found in writing
Each attendee will be provided: 1) The control drawing schematic and sequence of operations; 2) A copy of this agenda.
Discussion/lecture at site _____
Site demonstration of equipment operation _____
Written handouts _____
Manufacturer training manuals _____
Classroom lecture _____
Classroom hands-on equipment _____
Video presentation _____
Question and answer period _____

Section 4 - Approvals and Use *[Once the Agenda has been filled out by the Trainer, the County and Commissioning Authority review it, make edits, sign and return to Design-Build Entity who provides it to the Trainer for use during training. Copies of Agenda will be provided to trainees.]*

This plan has been approved by the following individuals, subject to the additions and clarifications noted in the left columns marked "add." *(This is not an approval of training completion.)*

_____ _____
County's Representative Date

_____ _____
Commissioning Authority Date

STAFF TRAINING AND ORIENTATION RECORD

Project: **Kern County BHRS Psychiatric Health Facility** Date: _____ Prepared by:_____
System or Equipment: _____

Trainee Signature[2] and Positions	Total Req'd Hrs[1]	Hrs Done	Training Date	General Topics Covered	Trainer Signature and Company	CA Initials/ Note ID
1. _____	_____	_____	_____	_____	_____	_____
_____		_____	_____	_____	_____	_____
_____		_____	_____	_____	_____	_____
_____		_____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____	_____	_____
_____		_____	_____	_____	_____	_____
_____		_____	_____	_____	_____	_____
_____		_____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____	_____	_____
_____		_____	_____	_____	_____	_____
_____		_____	_____	_____	_____	_____
_____		_____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____	_____	_____
_____		_____	_____	_____	_____	_____
_____		_____	_____	_____	_____	_____
_____		_____	_____	_____	_____	_____

[1]The hours of required training have been filled out from the *Specifications*. Refer to the *Specifications* for additional details regarding the training requirements.

[2]Trainee signs after the training session is completed.

Notes attached. (Y/N) _____

Final Approval of Training Completion
According to the Agreement Documents: _____ _____
County's Representative Date

1.04 QUALITY ASSURANCE

A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that required for Kern County BHRS Psychiatric Health Facility, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 01 4523, Quality Requirements, experienced in operation and maintenance procedures and training.

C. Videographer Qualifications: A professional videographer who is experienced digitally recording construction projects.

D. Pre-Instruction Conference: Conduct conference at Kern County BHRS Psychiatric Health Facility site to comply with requirements in Section 01 3000 (Administrative Requirements), similar to “Pre-Installation Conference.” Review methods and procedures related to anticipated demonstration and training including, but not limited to, the following:

1. Inspect and discuss locations and other facilities required for instruction.

2. Review and finalize instruction schedule and verify availability of educational materials, instructors’ personnel, audiovisual equipment, and facilities needed to avoid delays.

3. Review required content of instruction.

4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

5. Review “Training and Orientation Agenda” with video director so as to, coordinate any Trade or Level breaks that will be used in editing for creation of video clips.

1.05 COORDINATION

A. General:

1. Coordinate instruction schedule with the County's operations. Adjust schedule as required to minimize disrupting the County’s operations.

2. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

3. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by the County.

1.06 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections, and as follows:

1. Automatic entrance doors.

2. Kitchen Equipment, , and other equipment as applicable to Kern County BHRS Psychiatric Health Facility Project.

3. Fire-protection systems, including fire alarm, and fire- extinguishing systems.

4. Security systems.

5. Refrigeration systems, including chillers, cooling towers, condensers, pumps, thermal energy storage and distribution piping.

6. HVAC systems, including air-handling equipment, air distribution systems, and terminal equipment and devices.

7. EMCS, HVAC instrumentation and controls.

8. Electrical service and distribution, including transformers, switchboards, panelboards, uninterruptible power supplies, and motor controls.

9. Packaged engine generators, including transfer switches.

    a. Emergency generators

10. Lighting equipment and controls.

11. Communication systems, including intercommunication, surveillance, clocks and programming, voice and data, and television equipment.

12. Other systems and equipment as applicable to Project.

B. Training Modules:

1. Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master.

    a. For each scene of the module define the Trade and Level of target participant. Some cross-over is expected.

    b. Participant category and subcategory to be determined in consultation with the County.

c. Example Trades are: Controls, Electrical, Mechanical

d. Example Levels: Operation, Maintenance, Trouble-shooting

2. Design Requirements, Operational Requirements, and Performance Specifications: Include the following:

a. System, subsystem, and equipment descriptions.

b. Performance Specifications.

c. Design Requirements.

d. Operating standards.

e. Regulatory requirements.

f. Equipment function.

g. Operating characteristics.

h. Limiting conditions.

i. Performance curves.

3. Documentation: Review the following items in detail:

a. Emergency manuals.

b. Operations manuals.

c. Maintenance manuals.

d. Kern County BHRS Psychiatric Health Facility Project Record Documents.

e. Identification systems.

f. Warranties and bonds.

g. Maintenance service agreements and similar continuing commitments.

4. Emergencies: Include the following, as applicable:

a. Instructions on meaning of warnings, trouble, indications, and messages.

b. Instructions on stopping.

c. Shutdown instructions for each type of emergency.

d. Operating instructions for conditions outside of normal operating limits.

e. Sequences or electric or electronic systems.

f. Special operating instructions and procedures.

5. Normal Operations: Include the following, as applicable:

a. Startup procedures.

b. Equipment or system break-in procedures.

c. Routine and normal operating instructions.

d. Regulation and control procedures.

e. Control sequences.

f. Safety procedures.

g. Instructions on stopping.

h. Normal shutdown instructions.

i. Operating procedures for system, subsystem, or equipment failure.

j. Seasonal and weekend operating instructions.

k. Required sequences for electric or electronic systems.

l. Special operating instructions and procedures.

6. Adjustments: Include the following:

a. Alignments.

b. Checking adjustments.

c. Noise and vibration adjustments.

d. Economy and efficiency adjustments.

7. Troubleshooting: Include the following:

a. Diagnostic instructions.

b. Test and inspection procedures.

8. Maintenance: Include the following:

   a. Inspection procedures.

   b. Types of cleaning agents to be used and methods of cleaning.

   c. List of cleaning agents and methods of cleaning detrimental to product.

   d. Procedures for routine cleaning

   e. Procedures for preventive maintenance.

   f. Procedures for routine maintenance.

   g. Instruction on use of special tools.

9. Repairs: Include the following:

   a. Diagnosis instructions.

   b. Repair instructions.

   c. Disassembly; component removal, repair, and replacement; and reassembly instructions.

   d. Instructions for identifying parts and components.

   e. Review of spare parts needed for operation and maintenance.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.01 PREPARATION

A. General:

1. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.

2. Set up instructional equipment at instruction location.

3. Script training module video clips to focus on defined staff Trade and Level.

3.02 INSTRUCTION

A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Design-Build Entity and the County for number of participants, instruction times, and location.

B. Instructors:

1. Engage qualified instructors to instruct the County to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

2. The County will furnish an instructor to describe the County's operational philosophy.

3. The County will furnish Design-Build Entity with names and positions of participants.

C. Scheduling:

1. Provide instruction at mutually agreed upon times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

2. Design-Build Entity must coordinate with the County to create as comprehensive an overall training schedule as possible to facilitate the limited numbers of County staff that must be trained in all aspects of the new facilities. Schedule training with the County with at least twenty-one (21) calendar days advance notice.

D. Evaluation: At conclusion of each training module, assess and document each participant’s mastery of module by use of an oral, written, or demonstration performance-based test, as applicable.

E. Cleanup: Collect used and leftover educational materials and give to The County. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

F. Post Video Editing: Instructor to edit transcript so as to identify video clips that are targeted for different Operation and Maintenance (O&M) sections, Staff Trade & Level.

3.03 DEMONSTRATION AND TRAINING VIDEO INTERACTIVE DVD’S

A. General:

1. Engage a qualified commercial videographer to record all demonstration and training video Interactive DVDs. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.

2. At beginning of each training module, record each chart containing learning objective and lesson outline.

B. Interactive DVD Format:

1. Provide high-quality color Interactive DVDs with hard plastic snap-case for each.

2. All videos are to be shot by the same videographer.

C. Cameras:

1. Provide two identical cameras with a minimum resolution of 1080i High-definition at 30 frames per second.

2. Cameras to be mounted on fluid head tripods.

D. Camera Setup:

1. Two identical cameras are to be used.

2. Camera one is a medium to wide shot which includes the trainer and display materials, white board, charts, etc. Camera does minimal panning and zooming. Camera one is the default camera: All footage from camera one to be continuously usable. A lavaliere (lapel) microphone, is connected to Camera one.

3. Camera two is a close-up camera capturing details of whiteboards, machinery and, controls, etc. Camera two is outfitted with a medium-length shotgun microphone for clean back-up sound on audio channel 1. Audio channel 2 on camera two is outfitted with second microphone at director's station for scene descriptions and notes.

4. Both cameras shoot continuously to ease synchronization in editing.

5. The Director watches monitors of both camera angles and directs camera operators via wireless headset. Director monitors sound from camera one and also takes notes regarding any missed shots for pick-up at conclusion of training session. Monitor and sound from camera one is recorded (digitally) with time code, generating the window dub for transcription.

6. Supplemental lighting may be required depending on room size/on-site or details being filmed.

E. Video Format:

1. Window Dubs: Provide minimum standard definition (SD) resolution, full color, on DVD.

2. Original Footage: High definition (HD) Digital video (DV) at full camera resolution.

3. Edited Video Clips:

   a. Original camera resolution as digital media files supplied on Data DVD. (For archiving)

   b. Recompressed clips in H.264 WMV or quality-comparable Windows environment compatible compression, supplied on Data DVD. (For in-house server-based training stations.)

   c. Bookmarked & Menu'd DVDs in SD (For review, checks of edits and alternate training methods)

   d. Bookmarked & Menu'd DVDs in HD (For review, checks of edits and alternate training methods)

F. Recording:

1. Mount camera one on tripod before starting recording. Display continuous running time.

2. Mount camera two on tripod before starting recording, unless otherwise necessary to show area of demonstration and training. Display continuous running time.

3. Shoot a slate at start of each session including Module, Trainer, Location, Date and Time.

G. Narration: Describe scenes on video Interactive DVD by audio narration by microphone while video Interactive DVD is recorded, or by dubbing the sound after recording, whichever gives better results and clarity. Include description of items being viewed. Describe vantage point, indicating location, direction (by compass point), and elevation or story of construction.

H. Transcript:

1. Provide a typewritten transcript of the narration. Display images and running time captured from video Interactive DVD opposite the corresponding narration segment.

2. Transcripts to be generated from window dubs (raw video footage).

3. Raw transcript to be delivered to the trainer for marking of the video, tagging with the trade and level information and any content edits, for each video clip.

4. Trainer content edits to be incorporated into final transcript.

I. Video Editing Products & Organization:

1. Required Products:

a. Clips edited and compressed for use with local-network training stations.

b. Clips edited and compiled into DVDs & HD DVDs for alternate training methods. (Classroom, offsite, etc.)

c. Edit video into clips per trainers edits of transcript. Name clips so as to facilitate compilation by trade and level. (Example: M16T05L03)

d. A five second title card to appear at front of each clip identifying: Trade, Level, O&M section, instructor, facility, and date of recording.

2. Compile video clips by sequence, trade and level into the following movies. Provide menu for access by the following selections on DVDs & HD DVDs:

a. Entire module in sequence

b. By Trade: Where more than one trade is identified in the module assemble the clips in sequence for that trade.

c. By Level: Where more than one level is identified in the module, assemble the clips in sequence for that level.

d. By O&M documentation section.

3.04 ELECTRONIC DOCUMENTATION LINKING

A. Hyperlink each training module video clip to the corresponding section of the narration and corresponding O&M document section.

3.05 SPECIAL TRAINING FOR MECHANICAL EQUIPMENT

A. Training Responsibilities:

1. Require that the mechanical subcontractor be responsible for mechanical training coordination, scheduling and ultimately to ensure that training is completed.

a. Provide designated County personnel with a comprehensive training plan for mechanical equipment two months before the planned training.

b. Provide the County with comprehensive orientation and training in the understanding of the systems and the operation and maintenance of each piece of mechanical equipment including, but not limited to, chillers, boilers, pumps, air handling units, fans, terminal units and controls systems, etc.

2. Start training with classroom sessions followed by hands-on training on each piece of equipment, which must illustrate the various modes of operation, including startup, shutdown, fire/smoke alarm, power failure, etc.

3. If during demonstration the system fails to perform in accordance with the requirements of the O&M manual or sequence of operations, repair or adjust the system as necessary and repeat the demonstration.

4. Engage the appropriate trade or manufacturer's representative to provide the instructions on each major piece of equipment. This person may be the start-up technician for the piece of equipment, the installing Design-Build Entity or manufacturer's representative. Practical building operating expertise as well as in- depth knowledge of all modes of operation of the specific piece of equipment is required. More than one party may be required to execute the training.

5. The controls subcontractor must attend sessions other than the controls training, as requested, to discuss the interaction of the controls system as it relates to the equipment being discussed.

6. The training sessions must follow the outline in the Table of Contents of the operation and maintenance manual and illustrate whenever possible the use of the O&M manuals for reference.

7. Training must include:

   a. Use of the printed installation, operation and maintenance instruction material included in the O&M manuals. This material must be submitted and approved prior to being used in training.

   b. A review of the written O&M instructions emphasizing safe and proper operating requirements, preventative maintenance, special tools needed and spare parts inventory suggestions. The training must include start-up, operation in all modes possible, shut-down, seasonal changeover and any emergency procedures.

   c. Discussion of relevant health and safety issues and concerns.

   d. Discussion of warranties and guarantees.

   e. Common troubleshooting problems and solutions.

   f. Explanatory information included in the O&M manuals and the location of all plans and manuals in the facility.

g. Discussion of any peculiarities of equipment installation or operation.

h. The format and training agenda in “The Commissioning Process,” ASHRAE Guideline 2005 is recommended.

i. Classroom sessions must include the use of overhead projections, slides, video/audio Interactive DVD material as might be appropriate.

j. Hands-on training must include start-up, operation in all modes possible, including manual, shut-down and any emergency procedures and preventative maintenance for all pieces of equipment.

k. The mechanical subcontractor must fully explain and demonstrate the operation, function and overrides of any local packaged controls, not controlled by the central control system.

l. Training must occur after functional testing is complete, unless approved otherwise by the County.

m. Require the mechanical subcontractor to provide training on each piece of equipment according to the requirements identified in the Performance Specifications.

END OF SECTION

SECTION 01 8419

COLORS AND MATERIALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 GENERAL

A. Any item or material which has not received a color selection in this specification section will require a submittal of manufacturer's full range of colors for selections by the Owner.

1.03 INTERIOR COLORS AND MATERIALS

A. **Section 06 2000 – Finish Carpentry**

1. MDF Wall Panels: Painted Finish, *PT-6.*

2. Solid Surface Window Sills: (SSF-1) Corian, Color: *Everest.*

B. **Section 09 3000 – Tile**

1. Tile WT-1: Ceramic Wall Tile, Handwritten Colors & Field by Crossville, Color: *Love Letter.*

2. Tile WT-2: Accent Wall Tile, Handwritten Colors & Field by Crossville, Color: *Unscripted.*

3. Cement Tile WT-3: Wall Tile, Tesselle; Petal Lily 7.5" Cement Breeze Block: Color, *White.*

C. **Section 09 5100 – Acoustical Ceilings**

1. ACT-1:

   a. Ceiling Tile: Armstrong Dune*,* Color: *White.*

   b. Suspended Grid, Color: *White*.

2. ACT-2:

   a. Ceiling Tile: Armstrong Kitchen Zone*,* Color: *White*.

b. Clean Room Suspension System Grid, Color: *White.*

D. **Section 09 6500 – Resilient Flooring**

1. Static Dissipating Tile (SDT): Armstrong Static Dissipative Tile, Color: *Armor Gray #51951.*

2. Luxury Vinyl Plank (LVP-1): Patcraft; Splitwood, Color: *Raw Gold 00130.*

3. Luxury Vinyl Plank (LVP-2): Patcraft; Mark Making, Color: Succulent 00300.

4. Luxury Vinyl Plank (LVP-3): Patcraft; Mark Making, Color: Almond 00150.

E. **Section 09 6800 – Carpet**

1. Modular Carpet Tile (CPT-1): Masland Contract; Sound Off – Modular Tile, Color: *Hawthorne 50102.*

2. Modular Walk-Off Carpet Tile (WOM): Shaw Contract; Steppin Out / Welcome II Tile, Color: *Tobacco 31150*

F. **Section 09 7733 – Plastic Sheet Wainscots**

1. Fiberglass Reinforced Plastic Panel (FRP): Marlite, Color: *Designer White D354.*

G. **Section 09 7743 – Solid Polymer Wall Cladding**

1. Shower Polymer Wall Cladding (SPWC) at Shower Walls: Wilsonart, Color, *Luminous White 9221SP*

H. **Section 09 9000 – Paints and Coatings**

1. PT-1 Field: Benjamin Moore; Color: *Simply White 2143-70*

2. PT-2 Accent: Field: Benjamin Moore; Color: *Gray Mirage 2142-50*

3. PT-3 Accent: Benjamin Moore; Color: *Antiguan Sky 2040-60*

4. PT-4 Accent: Benjamin Moore; Color: *Cedar Green 2034-40*

5. PT-5 Accent: Benjamin Moore; Color: *TBD*

6. PT-6: Accent: Benjamin Moore; Color: *Aegean Teal 2136-40*

7. PT-7: Accent: Benjamin Moore; Color: *Jeweled Peach 2013-30*

8. General Wall Color: PT-1 (unless noted otherwise).

9. Interior Hollow Metal Doors and Frames: Paint to match adjacent wall finish.

10. Interior Hollow Metal Relite Frames: Paint to match adjacent wall finish.

11. Gypsum Wall Board Ceilings: PT-1 (unless noted otherwise).

12. Interior Mechanical Grilles and Louvers: Paint to match adjacent wall color, unless noted otherwise on elevations.

13. Interior Door Louvers: Paint to match door frame.

14. Interior Door Vision Panel Frame: Paint to match door frame.

15. Counter Support Bracket: Paint to match adjacent wall color.

I. **Section 10 1400 – Interior Signage**

1. Refer to Section 10 1400.

J. **Section 10 2600 – Corner Guards**

1. Aluminum Corner Guards (CG): Color: *Clear Anodized Aluminum*

K. **Section 12 3200 – Manufactured Casework**

1. Laminated Hardwood (Butcher Block): John Boos; *2-1/4" Thick American Black Walnut Island Tops*.

2. Melamine Interior: Color: *White.*

L. **Section 12 3661 – Solid Surface Countertops**

1. Solid Surface Countertop (SSF-1): Corian; Color: *Everest.*

M. **Section 12 5219 – Custom Upholstery**

1. Upholstery Fabric (UPH-1): Momentum Textiles; Silica Etc., *Sage.*

1.04 EXTERIOR COLORS AND MATERIALS

A. Refer to Exterior Finish Schedule on Exterior Elevations in the Architectural Drawing Set.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 01 9100

GENERAL COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work of this Section.

1.02 SUMMARY

A. This section describes the elements of Commissioning common to all Divisions of the project. The requirements listed here are in addition to, or are expected to coordinate with, the requirements in the related documents and specifications including detailed administrative and procedural requirements covering individual responsibilities, submittals, meetings, documentation, equipment inspections, startup and testing procedures, training, operating and maintenance manuals, and any related work during the Warranty Period.

B. Drawings and general provisions of the Contract Documents, including General and Supplementary Conditions and other sections in Division 1 are fully applicable to this Section, as if repeated herein.

C. The Kern County BHRS Psychiatric Health Facility Project is not requiring a LEED rating however following USGBC LEED 2009 Enhanced Commissioning requirements is recommended and is referenced herein.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE):

1. Guideline 0 – 2005: The Commissioning Process.

2. Application Handbook – 2003: Chapter 42 – New Building Commissioning.

3. Guideline 4 – 1993: Preparation of Operation and Maintenance Documentation for Building Systems.

C. United States Green Building Council (USGBC):

1. LEED 2009: EA Prerequisite 1 and Credit 3 Enhanced Commissioning

1.04 DEFINITIONS

A. Acceptance Phase: Phase of construction after Startup and Pre-Functional checkout when Functional Performance Tests, operation and maintenance documentation review and training occurs.

B. Approval: Acceptance that a piece of equipment or system has been properly installed and is functioning in tested modes according to the Contract Documents and Commissioning Plan.

C. Basis of Design (BOD): A document that records concepts, calculations, decisions and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document both narrative descriptions and lists individual items that support design process.

D. Building Automation System (BAS): The automated building system providing control and user interaction with select building systems.

E. Commissioning: The systematic process of ensuring that the building's systems are operating in accordance with the Contract Documents, that the systems perform interactively in accordance with the Contract Documents and that Facility Personnel are prepared to operate and maintain the building and its systems. This includes, but may not be limited to, pre-functional testing of equipment, functional testing of systems, system interoperability testing, training of Facility personnel, delivering Operations and Maintenance (O&M) documentation and turnover of completed systems.

F. Commissioning Authority (CxA): The designated third-party entity that provides oversight and review of the commissioning process in concert with the commissioning team. Owner will engage the CxA under a separate contract.

G. Commissioning Issue: A condition that affects, prevents or inhibits commissioning, and must be resolved to complete the commissioning process. Commissioning Issues are documented on the Commissioning Issues Log.

H. Commissioning Issues Log: A log maintained by the CxA listing all Deficiencies and Commissioning Issues documented during the commissioning process. All issues require action, correction and closure, and will be categorized as Open or Closed.

I. Commissioning Plan (Cx Plan): A document that outlines the organization, coordination, allocation of resources, and documentation requirements of the commissioning process.

J. Design-Build Entity: The Design-Build Entity is directly contracted to the Owner with overall responsibility for Kern County BHRS Psychiatric Health Facility Project, and all commissioning activities described. The Design-Build Entity is responsible for all work within its Contract scope, including that of the Installation Subcontractors.

K. Design-Build Entity's Commissioning Coordinator (CxC): Individual designated by the Design-Build Entity who plans, schedules, directs and coordinates all the Design-Build Entity's commissioning activities, and serves as the Commissioning Authority's (CxA) single point of contact for all administrative and coordination issues.

L. Data Logger: A stand-alone measuring device installed separate from the BAS to monitor and record equipment parameters such as flow, current, status, pressure, temperature and the likes.

M. Deferred Testing: Any Pre-Functional Checks & Tests or Functional Performance Testing which cannot be completed when scheduled due to building structure, required occupancy condition or other Deficiency causing delay. CxA and Owner must approve deferral of testing.

N. Deficiency: A condition in the installation or function of a component, piece of equipment or system that is not in compliance with the requirements of the Contract Documents. A Deficiency will be considered a Commissioning Issue and documented on the Deficiencies & Resolutions Log.

O. Design Professional: The Design Professional(s) responsible for design of each portion of Kern County BHRS Psychiatric Health Facility being commissioned.

P. Functional Performance Test (FPT): A test of the dynamic function, operation and control sequences of equipment and systems under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, alarm, power failure, etc. The FPTs can include Monitoring or Trending of the system to verify integrated operation and system performance to the fullest extent.

Q. Indirect Indicators: Indicators of a response or condition, such as reading from a control system screen reporting a damper to be 100 percent open.

R. Installation or Installing Subcontractor: Subcontractor responsible for construction of a specific division of work.

S. Installation Verification: Field verification and documentation of proper installation of system equipment, assemblies and components prior to Startup. Process is complete when systems are ready for Startup. Installation Verifications are organized under the System Readiness Checklist (SRC) forms.

T. Manual Test: Using hand-held instruments, immediate control system readouts or direct observation to verify performance (contrasted with analyzing monitored data to make the observation).

U. Monitoring: The recording of parameters (flow, current, status, pressure and the like) of equipment operation using data-loggers or the Trending capabilities of BAS.

V. Non-Compliance: See Deficiency.

W. Non-Conformance: See Deficiency.

X. Owner's Project Requirements (OPR): Written narrative describing the operational, functional, aesthetic, and energy efficiency requirements for Kern County BHRS Psychiatric Health Facility, and expectations of how the facility will be used and operated, as defined by the Owner. This document provides an explanation of the ideas, concepts, goals, criteria, and supporting information that are considered to be important to the Owner and is often the documented outcome of the budgeting, programming, and pre-conceptual Kern County BHRS Psychiatric Health Facility phases. Includes Bridging Documents as applicable.

Y. Percent Sampling: Inspecting or testing only a fraction of the total number of identical or near-identical pieces of equipment such as VAV boxes.

Z. Pre-Functional Checks & Tests: Based primarily on the manufacturer's detailed installation, startup and checkout sheets, these are the various checks and tests performed on a piece of equipment or system just before or after preparing the equipment and system for initial operation. They are typically performed to confirm that equipment and individual components are working properly, such as electrical spot measurements on motors, spot flow measurements, pressure testing, pipe flush-out and cleaning, control point-to-point checks, sensor calibration, actuator testing, etc., and include such things as mechanical system test and balance (TAB). Pre-Functional Checks & Tests are organized under the System Readiness Checklist (SRC) forms and must be completed prior to Functional Performance Testing.

AA. Seasonal Tests: Functional tests that are deferred until conditions closer to design loads or weather conditions are experienced.

BB. Startup: Initial starting or activating of equipment usually performed by the Installation Subcontractor.

CC. System Readiness Checklist (SRC): A summary checklist, ideally a one or two page cover sheet, covering the necessary commissioning tasks to conduct, and verify proper installation and startup of the equipment, prior to Functional Performance Testing. System Readiness Checklists include all necessary inspections and procedures to prepare equipment and systems for Functional Performance Testing. The Design-Build Entity or Installation Subcontractor completed Installation Verification, Startup and Pre-functional forms must be attached to the related SRC organized by equipment.

DD. TAB: Testing, Adjusting, and Balancing or Test and Balance.

EE. Installation Subcontractor: Typically a subcontractor to the Design-Build Entity who provides and installs specific building components and systems.

FF. Test Procedures: The step-by-step process which must be executed to fulfill the Test Requirements.

GG. Test Requirements: Requirements, indicating what modes and functions must be tested.

HH. Trending: Monitoring using the Building Automation Systems (BAS) to aid in functional testing and verify system operation and performance under actual operating conditions.

II. Warranty Issues: Operational and outstanding issues and deficiencies identified during the Warranty Period.

JJ. Warranty Period: Warranty Period for the entire Kern County BHRS Psychiatric Health Facility, including components. Refer to General Conditions, Warranty, Guaranty, and Inspection of Work, for Warranty, Extended Guarantees, and Correction Period provisions.

1.05 SYSTEMS TO BE COMMISSIONED

A. This specification section is applicable to the following systems and equipment to be commissioned in Kern County BHRS Psychiatric Health Facility:

1. All equipment of the heating, ventilating and air conditioning (HVAC) systems, such as condenser / hot / chilled water systems, natural ventilation systems, air handling units, terminal units, exhaust fans, jet fans, smoke evacuation fans, etc.

2. Plumbing (domestic hot water generators and pumps.

3. Lighting controls (scheduled or occupancy sensors.

4. Daylight dimming controls.

5. Refrigeration systems.

6. Electrical (medium voltage electrical power systems (12KV), transformers, power monitoring controls, emergency generators including fuel oil and leak detection system, UPS, ATS, MCCs and power distribution panels.

7. Fire alarm, fire detection, fire suppression, fire annunciation, and other required fire systems.

8. Security systems including CCTV and access control.

9. Communication systems (public address, audio / visual, IT backbone, static and variable signage.

10. Domestic, grey and other water systems.

11. Plumbing (sewage ejector system, sump pumps, domestic booster pumps, toilets, showers and lavatories, storm drainage system.

12. Landscape irrigation systems.

1.06 SUMMARY DESCRIPTION OF COMMISSIONING

A. Commissioning process and documentation must conform to the requirements of the USGBC's LEED 2009 for New Construction and Major Renovations EA Prerequisite 1 – Fundamental Commissioning and Credit 3 - Enhanced Commissioning. Design-Build Entity, Installing Subcontractors, and suppliers are responsible to ensure all requirements for commissioning are met in their respective work as defined in this section.

B. Commissioning scope of work must encompass systems that are referenced in USGBC's LEED 2009 for New Construction and Major Renovations as well as other systems not included in LEED per Section 1.05 above.

C. Commissioning is a systematic process of ensuring that building systems are installed and perform functionally and interactively as intended according to the Owners Operational Requirements (OPR), Basis of Design (BOD), and the requirements of the Contract Documents (including Bridging Documents).

D. Commissioning during the design phase is intended to achieve the following specific objectives in development of the Contract Documents:

1. Review the OPR and BOD for clarity and completeness. The Owner and Designers must update the OPR and BOD, respectively, as required.

2. The CxA reviews the Design Documents, prior to mid-phase construction documents completion, for adherence to the OPR and BOD, and back-checks the review comments in the subsequent design submission.

3. Incorporate commissioning requirements into the Contract Documents.

E. Commissioning during the construction phase is intended to achieve the following specific objectives according to the Contract Documents:

1. Finalize the Commissioning Plan.

2. Review Design-Build Entity submittals applicable to the systems being commissioned. The CxA review must be concurrent with the DP reviews and submitted to the Designers and Owner.

3. Verify that applicable equipment and systems are installed according to the manufacturer's recommendations and to industry-accepted minimum standards and that they receive adequate operational checkout and testing by the Installation Subcontractors.

4. Verify and document proper performance of equipment and systems.

5. Verify that operation and maintenance documentation is provided and is complete.

6. Develop a systems manual that provides future operating staff the information necessary to optimally operate the commissioned systems.

7. Verify that the Owner's facilities and operations personnel are trained per the Contract Document requirements.

F. Commissioning during the warranty phase is intended to achieve the following specific objectives according to the Contract Documents:

1. Perform any seasonal or deferred testing.

2. Review operational issues prior to end of warranty period so that warranty items are identified and corrected.

G. The commissioning process does not take away from or reduce the responsibility of the Design-Build Entity to provide a finished and fully functioning product. The Design-Build Entity has overall responsible to assure that all systems are properly tested and commissioned, and that all required commissioning documents are completed and provided to the Owner.

1.07 COMMISSIONING TEAM

A. Owner's Representatives.

B. Design Professionals (DP).

C. Commissioning Authority (CxA).

D. Design-Build Entity.

E. Design-Build Entity's Commissioning Coordinator (CxC).

F. Installing Subcontractors responsible for specific types of systems being commissioned:

1. Mechanical Subcontractor.

2. Electrical Subcontractor.

3. Plumbing Subcontractor.

4. HVAC Controls Subcontractor.

5. Testing and Balance (TAB) Subcontractor.

6. Emergency Generator Installing Subcontractor.

7. UPS Installing Subcontractor.

8. Security and CCTV Installing Subcontractor.

9. Telecomm and IT Installing Subcontractors.

10. Signage Installing Subcontractors.

11. Paging Systems Installing Subcontractors.

12. Fire Alarm, Detection and Fire Suppression Systems Installing Subcontractors.

G. Any Testing Subcontractor and 3rd party testing agencies for commissioned systems.

1.08 COMMISSIONING PROCESS OVERVIEW

A. The following narrative provides an overview of the typical commissioning tasks during construction and the general order in which they occur:

1. The Commissioning Authority (CxA) prepares a Preliminary Cx Plan during the Kern County BHRS Psychiatric Health Facility final design phase. The Cx Plan provides guidance in the execution of the commissioning process during construction.

2. Commissioning during construction begins with a kickoff meeting conducted by the CxA where the commissioning process and systems to be commissioned are reviewed with the commissioning team members, including the Design-Build Entity and Installation Subcontractors. The Preliminary Cx Plan is presented and reviewed, and specific requirements are discussed. The Design-Build Entity will designate the CxC at or before this meeting.

3. The CxA must review Design-Build Entity submittals applicable to systems being commissioned for conformance to the construction documents, BOD and OPR. This review will run concurrent with Engineer of Record reviews and written comments submitted to the Design-Build Entity and the Owner.

4. As part of the commissioning submittals, the Design-Build Entity must submit to the CxA equipment documents and proposed commissioning forms for completing Installation Verification, Startup, and Pre-Functional Checks & Tests. The CxA will review these commissioning forms and will provide final approval and acceptance of these forms prior to their use by the Design-Build Entity and/or Installation Subcontractors.

5. These forms include standard Manufacturer or Installation Contactor installation checklists, detailed startup procedures, proposed startup and pre-functional checks and tests, and other Kern County BHRS Psychiatric Health Facility specific requirements and forms.

6. The CxA reviews these Design-Build Entity-submitted commissioning forms for completeness including any Kern County BHRS Psychiatric Health Facility specific requirements.

7. The CxA may request additional data, changes and/or additions to these forms to make sure they are complete. If the Design-Build Entity submitted forms are not available or not sufficient, then the CxA will develop specific forms or supplemental forms, based on the construction documents and specifications, manufacturer installation manuals and procedures, and/or industry standards or guidelines.

8. The CxA develops System Readiness Checklist (SRC) forms which summarize and track the Installation Verifications, Startup, and Pre-Functional Checks & Tests required for each system and equipment to be commissioned prior to FPT. The Design-Build Entity must complete the SRC forms, and include (attach) completed Installation Verification, Startup, and Pre-functional Checks and Test forms to document that systems and equipment are ready for FPT. The CxC must submit the completed SRCs and associated documents to the CxA and Owner for approval before proceeding to Functional FPT.

9. The CxA will update the Cx Plan with equipment specific documentation, check-lists, and test forms.

10. Additional meetings will be conducted throughout construction with Commissioning Team members, as required, to plan, scope, coordinate, and schedule commissioning activities, review documentation, and resolve Commissioning Issues and Deficiencies.

11. CxA will perform various inspections and back-checks of the completed Installation Verification forms submitted by the CxC as part of the SRC.

12. Installing Subcontractors, as directed by the CxC, must perform Startup and Pre-Functional Checks & Tests. The CxC must document completion of the Installation Verification, Startup and Pre-Functional Checks & Tests on the SRC and attach completed forms to the SRC. The CxA will witness select Start-up and Pre-Functional Checks & Tests, and perform a sample number of inspections and back-checks where determined to be necessary.

13. The CxA will develop final equipment and system Functional Performance Test (FPT) procedures and forms. These test procedures are submitted to the Design-Build Entity and Installation Subcontractors for review and comment.

14. Once systems to be commissioned are verified ready for FPTs by the completion of the SRC, the FPTs are executed by the Installation Subcontractors under direction of the CxC, and witnessed by the CxA. The FPTs may be achieved by, or any combination of: Manual Testing; Monitoring via the BAS system Trending capabilities; or by stand-alone Data Loggers and analyzing the results.

15. During Installation Verification, Startup, Pre-Functional Checks & Tests, and Functional Performance Testing, all Deficiencies and Commissioning Issues are recorded by the CxA on the Commissioning Issues Log. The Design-Build Entity and its Installation Subcontractors must correct Commissioning Issues and retest the system(s) without delay at no additional cost to the Owner.

16. The Design-Build Entity must compile and complete the Operations & Maintenance Manuals per the Contract documents requirements. The CxA will review for completeness and provide comments to the Owner and Design-Build Entity on the Operation and Maintenance documentation.

17. The CxA will review and provide comment to the Owner and Design-Build Entity on the specified training provided by the Installation Subcontractors and must verify that it has been completed.

18. The CxA will review the Systems Manual requirements with the CxC and will provide assistance to the CxC in preparing this document.

19. The CxA will complete the Final Construction Phase Commissioning Report for the Owner.

1.09 SUBMITTAL REQUIREMENTS FOR COMMISSIONING

A. Refer to Section 01 3300 (Submittals) for submittal procedures.

B. Normal Submittals:

1. For all systems and equipment commissioned, the CxA will review equipment submittals concurrently to the Design Professional as part of the normal submittal process and per LEED enhanced commissioning requirements. Electronic files are acceptable.

2. The CxA will receive from the Design-Build Entity a copy of approved submittals for equipment and systems to be commissioned. Electronic files are acceptable.

C. Commissioning Submittals. Submittals to CxA for use in developing the Cx Plan and all commissioning forms will include, but not be limited to the following. Electronic files are acceptable.

1. Detailed manufacturer installation and startup manuals with checklists, troubleshooting procedures, operating and maintenance procedures for the equipment and systems to be commissioned. These are contained within the manufacturer O&M Manuals, as required in Section 01 7823 (Operations and Maintenance Data).

a. This commissioning submittal will be after equipment submittals are approved and prior to equipment onsite installation. This commissioning submittal can be part of the preliminary O&M Manuals submittal, if submitted prior to equipment onsite installation.

b. The manufacturer installation and startup checklists and procedures will be used by the CxA to review Design-Build Entity submitted commissioning forms (item 3) and developing supplemental forms, if needed, before equipment onsite installation.

2. A copy of the installation and checkout materials actually shipped with equipment, including actual field checkout forms to be used by factory or field technicians.

3. Design-Build Entity, Installation Subcontractor or Manufacturer commissioning forms for Installation Verification and Startup and Pre-Functional Checks & Tests.

a. The CxA reviews these Design-Build Entity submitted commissioning forms for completeness including any Kern County BHRS Psychiatric Health Facility specific requirements.

b. The CxA may request additional data, changes and/or additions to these forms to make sure they are complete.

4. Shop drawings including detailed sequences of operation.

1.10 OPERATING AND MAINTENANCE AND SYSTEMS MANUALS

A. The Design-Build Entity must compile Operation and Maintenance Manuals as specified in the Contract Documents. The O&M manual documents must be clearly marked to highlight the actual equipment and features installed. In addition, the following must be included for all systems and equipment commissioned:

1. Specification sections copied from the design documents including any addenda.

2. Approved submittal data, cut sheets and appropriate shop drawings.

3. Manufacturer's Operation and Maintenance Instructions which must include:

a. Installation, startup and break-in instructions.

b. All starting, normal shutdown, emergency shutdown, manual operation, seasonal changeover and normal operating instructions.

c. Operation, Maintenance and Installation instructions originally shipped with the unit.

d. Detailed preventative maintenance and service procedures including a schedule matrix checklist (checked as weekly, monthly, quarterly, etc.).

e. Troubleshooting procedures.

f. Parts list, edited to omit reference to items which do not apply.

g. Lists of special tools required to service or maintain the equipment.

h. Performance data, ratings and curves, etc.

i. Warranty documents clearly identifying conditions required to maintained warranty, and specific conditions which may void the warranty.

j. Any service contracts issued.

4. Design-Build Subcontractors must include as-built controls drawings and as-built detailed sequences of operation for each piece of commissioned equipment and its components.

B. For all systems and equipment commissioned, CxA will review for required content inclusion and completeness in O&M manuals.

C. For all systems and equipment commissioned. Provide a separate “Systems Manual” which focuses on operating rather than maintaining equipment, particularly the interaction between equipment to include the following;

1. The final version of the BOD.

2. System single line diagrams.

3. As-built “Sequences of Operation”, control drawings and original setpoints.

4. Operating instructions for integrated building systems.

5. Recommended schedule of maintenance requirements and frequency if not already included in the Kern County BHRS Psychiatric Health Facility O&M manuals.

6. Recommended schedule for retesting of commissioned systems with blank test forms from the original Commissioning Plan.

7. Recommended schedule for calibrating sensors and actuators.

1.11 RESPONSIBILITIES

A. General: The Commissioning Team and all others involved in the commissioning process must follow the Commissioning Plan, attend commissioning kickoff meeting, and additional commissioning meetings as necessary.

B. Commissioning Authority (CxA)

1. The primary role of the CxA is to organize and lead the commissioning team, to develop the Commissioning Plan, and assist the CxC in coordination and execution of the commissioning process.

2. Prepare the Cx Plan and work with the Owner and Design-Build Entity to schedule commissioning activities.

3. Review submittals for compliance with the Cx Plan and the need for developing commissioning forms.

4. Convene commissioning team meetings, prepare meeting agendas and distribute meeting minutes.

5. Perform inspections and back-checks of Design-Build Entity completed Installation Verification.

6. Observe and inspect system and equipment installation, start-up, checkout, and testing for compliance with the OPR, BOD, and Contract Documents, review completion of commissioning documentation, and record any Deficiencies and Commissioning Issues on the Deficiencies & Resolutions Log.

7. The CxA will develop FPT forms for review and comment by the Design-Build Entity and Installation Subcontractors. The CxA will witness the execution of the FPTs by the Installation Subcontractors. The CxA will witness one (1) re-test of any commissioned equipment or system.

8. Review and comment on Operation and Maintenance documentation and training plans.

9. Assist the Design-Build Entity in developing the Systems Manual.

10. Assemble the commissioning documents and include in a Commissioning Report.

11. The CxA is not responsible for:

a. Design concept or design criteria.

b. Review for code compliance.

c. Design and construction scheduling.

d. Cost estimating.

e. Construction management.

f. Providing tools and test equipment used for commissioning and data collection.

g. Scheduling Startup or Functional Performance Testing.

h. Coordinating the work of Installation Subcontractors, vendors and any special testing agents.

i. Performing Pre-functional checks and tests, Startup and Functional Performance Tests.

C. Design-Build Entity:

1. Design-Build Entity is responsible for all commissioning tasks to be performed, including tasks assigned to Installation Subcontractors. The Design-Build Entity must ensure that all commissioning responsibilities are assigned to and completed by competent personnel.

2. Include the cost for the Design-Build Entity and Installation Subcontractor's support of the commissioning process in the Stipulated Sum.

3. Schedule and coordinate the commissioning kickoff meeting and other selected meetings with the CxA to facilitate the commissioning process.

4. Plan, schedule, coordinate and facilitate the commissioning work performed by Design-Build Entity and Installation Subcontractors. Provide sufficient lead-time of at least 10 days to notify the CxA in advance of commissioning activities. Update the master construction schedule periodically with commissioning progress and required activities.

5. Review, comment and accept the Cx Plan prepared by the CxA.

6. Furnish a copy of any Design-Build Entity or Installation Subcontractor construction related documents such as change orders, approved submittals, and shop drawings related to commissioned systems to the CxA. Electronic files are acceptable.

7. Include requirements for submittal data, installation manuals, operation and maintenance data, commissioning tasks, and training in each purchase order or subcontract written for commissioned systems. Electronic files are acceptable.

8. Ensure that all Installation subcontractors execute commissioning responsibilities according to the Contract Documents, Cx Plan, and schedule.

9. Using SRC and FPT forms, document and certify that all work is complete and systems are installed, operational and functionally tested, according to the Contract Documents, including calibration of instrumentation and controls.

10. Evaluate installation and performance deficiencies identified on the Commissioning Issues Log and any inspection and test reports. Commissioning Issues will be tracked according to the responsible entity. Collaborate with Installation Subcontractors responsible for system and equipment installation and recommend corrective action for Installation Subcontractor Deficiencies. Assure all Installation Subcontractor Deficiencies and Commissioning Issues are resolved.

11. Prepare a training plan, submit to CxA and Owner for review. Execute training of Owner's personnel per approved training plan.

12. Prepare Operation and Maintenance Manuals in accordance with the Contract Documents.

13. For all systems commissioned, document Warranty Issues for the Owner.

14. Pay additional costs and back-charges for additional CxA services resulting from excessive retests.

D. Installation Subcontractors:

1. See Bridging Documents for reference to other specifications sections for responsibilities relating to specific systems and Divisions. Installation Subcontractors responsibilities may be re-assigned as seen fit by the Design-Build Entity.

    a. Include and itemize all cost for Installation Subcontractors commissioning tasks.

    b. Provide additional submittal data, installation manuals, manufacturer's detailed installation checks and startup procedures Operation and Maintenance data, required warranty procedures, and any other requested documentation for equipment and systems to be commissioned.

    c. Attend commissioning meetings as directed by the CxC to facilitate the commissioning process.

    d. Assign personnel with expertise and authority to act on behalf of the Installation Subcontractor and schedule them to participate in and perform assigned commissioning tasks.

e. Assist CxA in preparing the Functional Performance Test Procedures, clarifying the operation and control of commissioned equipment where the specifications, control drawings or equipment documentation is not sufficient for writing detailed testing procedures. Review the Functional Performance Test procedures to ensure feasibility, safety and equipment protection, and provide necessary written alarm limits to be used during the tests.

f. Provide Owner training for systems commissioned. Submit a training plan for CxA and Owner review and approval.

g. Perform and document Startup and checkout. Complete all Pre-Functional Checks & Testing documentation clearly and legibly. Provide a copy of all forms to the CxC and CxA as part of completing the System Readiness Checklists.

h. Address Installation Subcontractor applicable Deficiencies & Resolution Log items promptly. All installation and Startup issues must be resolved before Function Performance Testing can proceed.

i. Coordinate with CxA and perform Functional Performance Testing. Execution of tests must be witnessed by the CxC and CxA.

j. Assist the CxA in collecting all requested Monitoring / Trending data associated with FPTs.

k. Prepare Operation and Maintenance Manuals according to the Contract Documents, including all additional documentation required by these specifications.

l. During construction, maintain as-built red-line drawings and make available for CxA review during the commissioning process.

E. Testing and Balancing (TAB) Subcontractor:

1. The commissioning responsibilities of the TAB Subcontractor for commissioning in addition to those listed in “Installation Subcontractors” section are:

a. Submit the outline of the TAB plan and approach for each system and component to the CxA and Design-Build Entity prior to starting TAB. This plan must be developed after the TAB Subcontractor is familiar with all control systems.

b. Immediately report any Deficiencies discovered which may affect or delay the commissioning process.

c. Provide draft TAB report to DP, CxA and CxC for review.

F. Equipment Suppliers:

1. Provide all requested submittal data, including detailed installation checks, startup and checkout procedures and forms, and O&M manuals.

2. Provide factory test data and documentation per the Design-Build Entity Documents.

3. Assist in equipment testing per any agreements with Installation Subcontractors.

4. Include all special tools and instruments specific for a piece of equipment which are only available from equipment supplier and required for testing the equipment according to Contract Documents.

5. Provide information and support requested by the CxA regarding equipment sequences of operation and testing procedures.

6. Coordinate balance activities with activities of the mechanical and controls contractors. Verify that coordination, installation, quality control and final subcontractor's testing have been completed to allow proper balancing work to be performed.

7. Test, Adjust, & Balance the system per specification requirements.

8. Perform field verification of 10% of total TAB measurements under the direction of CxA to confirm accuracy of TAB report as provided in Section 23 0500. A total of 40 hours, not including hours needed to resolve identified issues and perform follow-up testing if required, shall be provided for this testing.

G. Third Party Testing Subcontractors and Agencies

1. Include the cost for support of the commissioning process.

2. Immediately report any Deficiencies discovered which may affect or delay the commissioning process.

3. Plan, schedule, coordinate and facilitate the commissioning work performed by Design-Build Entity and Installation Subcontractors. Provide sufficient lead-time and notify CxA well in advance of commissioning activities. Update the master construction schedule periodically with commissioning progress and required activities.

4. Review, comment and accept the Cx Plan prepared by the CxA.

5. Evaluate installation and performance deficiencies identified on the Commissioning Issues Log and any inspection and test reports. Collaborate with Installation Subcontractors responsible for system and equipment installation and recommend corrective action for Deficiencies. Assure all Deficiencies and Commissioning Issues are resolved.

6. Provide copies of all forms and field reports that include commissioned equipment to the CxA for review.

PART 2 - PRODUCTS

2.01 TEST EQUIPMENT

A. All standard testing equipment required to perform Startup, Pre-Functional Checks & Tests and Functional Performance Testing must be furnished by the Installation Subcontractor responsible for the equipment and systems being commissioned.

B. Special equipment, tools and instruments (only available from the vendor, specific to a piece of equipment) required for testing equipment must be included in the base bid price, and turned over to the Owner at Kern County BHRS Psychiatric Health Facility Project completion.

C. All testing equipment must be of sufficient quality and accuracy to test and/or measure system performance with the tolerance specified in the Contract Documents. If not otherwise specified, the following minimum requirements apply:

1. Temperature sensors and digital thermometers must have a certified calibration within the past year to an accuracy of 0.5 degree F and a resolution to + or – 0.1 degree F.

2. Pressure sensors must have an accuracy of + or – 2.0 percent of the value range being measured (not full range of meter) and have been calibrated within the last year.

3. All equipment must be calibrated according to the manufacturer’s recommended intervals and recalibrated when dropped or damaged.

4. Calibration tags must be affixed or certificates readily available for all test equipment.

2.02 COMMISSIONING FORMS

A. Installation Verification Form:

1. Forms used to provide field verification and documentation of proper installation of equipment and system components prior to Startup.

2. Forms will be developed by the Design-Build Entity or Installation Subcontractor, CxA referencing the Contract documents and manufacturer provided documentation provided during submittal. The CxA will review the forms and may request changes and/or additions to these forms or supplemental forms to make sure they are complete.

B. Startup and Pre-Functional Checks & Tests Forms:

1. Forms primarily consist of Manufacturer and Installation Subcontractor Startup and Pre-Functional checkout sheets, and must be used where required and appropriate. The CxA will review all forms to ensure manufacturer-recommended procedures and tests are fully included.

2. The CxC and Installation Subcontractor must review all Functional Performance Tests (FPT) documents provided by the CxA prior to including them in the final Commissioning Plan.

3. Installation Subcontractor must use Functional Performance Test forms provided by CxA.

PART 3 - EXECUTION

3.01 SCHEDULING AND COORDINATION

A. The CxA will provide an initial schedule of commissioning events to the CxC at the commissioning kickoff meeting.

B. Design-Build Entity must develop a detailed Start-up Schedule for all systems to be commissioned and coordinate with CxA to include commissioning milestones. The Design-Build Entity will integrate all commissioning activities into the master construction schedule.

C. The CxC must provide sufficient notice to the CxA and Owner for scheduling and coordinating commissioning activities. A minimum 10 days of notice must be provided to the CxA for witnessing equipment Start-ups, Pre-Functional Checks & Tests, and Functional Performance Testing.

D. The Commissioning Team must address scheduling problems and make necessary notification in a timely manner in order to expedite the commissioning process.

3.02 MEETINGS

A. When commissioning team member attendance is required, as determined by the CxA and CxC, be punctual and attentive during the meeting.

1. The CxA will conduct a commissioning kick-off meeting, usually within 60 days of the commencement of construction. All team members involved in the commissioning process must attend the kick-off meeting.

2. The CxA will plan other commissioning meetings as deemed necessary as construction progresses. These meetings will cover planning and coordination, and Commissioning Issues resolution.

3. The frequency of meetings will vary through construction, but generally increase during start-up and commissioning activities.

B. The CxA will write and distribute meeting minutes documenting the meeting discussion, conclusions, and actions for each team member.

3.03 SYSTEMS READINESS: INSTALLATION VERIFICATION, STARTUP, PRE-FUNCTIONAL CHECKS AND TESTS

A. Design-Build Entity must utilize and complete System Readiness Checklists (SRC) to ensure equipment and systems are complete, operational, and ready for Functional Performance Testing. The SRCs are checklists which summarize and track the completion of Installation Verification, Startup, and Pre-Functional Checks & Tests.

1. SRCs are developed by the CxA with input from the CxC and Installation Subcontractors.

2. Design-Build Entity must document the progress and completion of Installation Verification, Startup, and Pre-Functional Checks & Test on the SRC. Upon completion, Design-Build Entity must attach all associated Installation Verification, Startup and Pre-Functional Checkout & Testing forms to the SRCs and submit to the CxA for approval.

3. Approval of completed SRC by the CxA is required prior to Functional Performance Testing of equipment and system.

4. Each SRC may have more than one Installation Subcontractor responsible for its execution.

B. Design-Build Entity must provide complete Installation Verification, Startup and Pre-Functional Checkout & Testing forms for each commissioned system.

1. Each piece of equipment and system will receive a full Installation Verification, Startup, and Pre-Functional Checks & Tests.

2. The CxA must perform the Installation Verification. The Design-Build Entity will be responsible for the completion of all Startup and Pre-Functional Check & Tests and associated forms.

3. All completed forms must be attached to the SRC and submitted for CxA and approval before proceeding with Functional Performance Testing.

4. At the discretion of the CxA and per the approved Cx Plan, Percent Sampling may be used for multiple identical pieces of non-life-safety or non-critical equipment.

C. All tests and start-up procedures must be conducted without compromise to human or equipment safety. The Design-Build Entity will be responsible for the liability and safety of conducting all tests.

D. Design-Build Entity must clearly identify and list any Deficiencies resulting from the Installation Verification, Start-up and Pre-Functional Checks & Tests on the SRC forms and immediately notify the CxA. Once Deficiencies are corrected and verified or tested, update and resubmit SRC and associated forms.

3.04 FUNCTIONAL PERFORMANCE TESTING (FPT)

A. The CxA will develop test procedures and Function Performance Test (FPT) forms for each piece of equipment and system to be commissioned. At the discretion of the CxA and per the approved Cx Plan, percent sampling may be used for selected, multiple identical pieces of non-life-safety or non-critical equipment (example: VAV boxes).

1. Design-Build Entity will assist the CxA in development of FPT forms by providing the required submittal data and updates, and providing additional equipment and system operation information when requested by CxA.

2. Prior to execution, the CxA will provide a copy of the test procedures to the Design-Build Entity and Installation Subcontractor. The Design-Build Entity and Installation Subcontractor must review and approve the tests procedures for feasibility, safety, equipment and warranty protection.

B. Installation Design-Build Entity will execute all Functional Performance Tests per the approved test procedures on the FPT forms. All testing results must be documented on the FPT forms; the forms must be signed and dated by the representative performing the tests. Off hours or weekend work may be required to complete the FPTs.

C. The CxA must witness all FPT procedures per the Cx Plan. Design-Build Entity must coordinate all Functional Performance Tests with the CxA, and provide a minimum of 10 day's notice prior to conducting each system test.

D. Functional Performance Testing for each system must be successfully completed and signed by the CxA prior to formal Approval of system commissioning.

E. Functional Performance Tests may be conducted using these approved test methods:

1. Manually manipulating the equipment settings and observe performance and/or monitoring performance by analyzing results using the control system's trending capabilities.

2. Overwriting control system sensor values to simulate a condition, such as overwriting the outside air temperature to be something other than it actually is.

3. Altering setpoints to force equipment into a mode of operation to verify a sequence. For example, to see the AC compressor lockout work at an outside air temperature below 55 degrees F, when the outside air temperature is above 55 degrees F, temporarily change the lockout setpoint to be 2 degrees F below the current outside air temperature.

4. Using Indirect Indicators for testing responses will be allowed only after the actual conditions represented by the Indirect Indicators have been visually and directly verified, calibrated and documented on the SRC.

F. Setup:

1. Each function and test must be performed under conditions that simulate actual conditions as close as is practically possible.

2. The Installation Subcontractor executing the test must provide all necessary materials, system modifications, etc. to produce the necessary flows, pressures, temperatures, etc. necessary to execute the test according to the specified conditions.

3. At completion of the test, the Installation Design-Build Entity must return all affected building equipment and systems to their pre-test normal condition.

G. Functional testing must be performed and documented for 100% of all equipment in the scope of commissioning. At the discretion of the CxA, the CxA may witness a sampling of the functional tests.

H. Where the CxA requires BAS trending, the CxA will provide within a FPT form a points list that may include both hardware (inputs, outputs) and virtual / software points, and appropriate trending intervals.

1. The Design-Build Entity must provide trend data to the CxA in electronic format. As an Owner approved alternative, the Design-Build Entity can provide the CxA remote access to the control system and provide training that will allow the CxA to directly download trend data.

2. The CxA will analyze and review the trend data and associated system performance.

3.05 DEFICIENCIES AND COMMISSIONING ISSUES

A. During the Installation Verification, Startup, and Pre-Functional Checks & Tests, all Deficiencies and Commissioning Issues will be documented on the inspection and test forms in use, and will additionally be documented by the CxA on a Commissioning Issues Log.

B. Immediate correction of minor Deficiencies identified during testing may be allowed at the discretion of the CxA. In such cases the Deficiency and identified resolution must still be documented on the commissioning form in use.

C. When Commissioning Issues are identified during Functional Performance Testing, the CxA will discuss with the executing Installation Design-Build Entity and/or CxC and determine whether testing can proceed or be suspended. The Commissioning Issue and any identified resolution will be documented on the commissioning test form in use in addition to the Commissioning Issues Log.

D. The CxA will maintain and update the Commissioning Issues Log, and document the issues resolution process. Copies will be distributed to the Design-Build Entity, Owner, and Installation Subcontractors as appropriate.

E. All Deficiencies and Commissioning Issues must be corrected promptly. The responsible party must correct the issue and inform the Design-Build Entity and CxA in writing of the resolution and completion date. The CxA will record completion on the Commissioning Issues Log and the CxC must reschedule testing with the CxA and Installation Subcontractor. Testing must be repeated until passing performance is achieved or the Owner accepts the noted issue.

F. When there is a dispute regarding a Commissioning Issue, whether it is valid or who is responsible, additional parties may be brought into the discussion as appropriate. The CxA must have the final interpretive authority and the Owner will have the final approval authority.

G. The CxA may recommend solutions to Deficiencies and Commissioning Issues. However, the burden of responsibility to solve, correct and perform required retests is with the Design-Build Entity, Installation Subcontractors, and the Design Professional(s).

H. Retesting:

1. For all Commissioning Issues identified during Functional Performance Testing, retesting is required to verify the resolution of the issue and to complete the FPT.

2. The CxA will witness one re-test for each equipment or system. A minimum of 48 hours of notice is requested for scheduling any re-testing, though the CxA will work to accommodate a shorter timeframe if feasible.

3. Any required retesting must not be considered a justified reason for a claim of delay or for a time extension.

3.06 TRAINING OF OWNER PERSONNEL

A. The CxC must coordinate and schedule the training for Owner Personnel. The CxC must ensure that training is completed per the requirements of the construction documents and specifications.

B. Installation Subcontractors responsible for specific equipment and system training must submit a written training plan to the Design-Build Entity for all equipment and systems to be commissioned no less than (30) days prior to start of training. Design-Build Entity must submit training plan(s) to CxA and Owner for review and approval. The training plan(s) will cover the following elements:

1. Equipment and/or systems included in training.

2. Intended audience.

3. Location of training.

4. Subjects covered (description, duration of discussion, presentation methods, etc.).

5. Instructor's name and qualifications.

C. The CxA must review the training plans to verify compliance with the Specifications.

D. Design-Build Entity must submit to CxA an 'attendee signed' attendance sheets for each training session conducted.

3.07 DEFERRED AND SEASONAL TESTING

A. Before or during the end of the first year Warranty Period, any Seasonal Testing or Deferred Testing as defined in the Cx Plan, must be completed as part of this Contract. Tests must be conducted by the Installation Subcontractor responsible for the equipment and systems, completed in the same manner as all other commissioning tests, and must be witnessed and by the CxA.

B. Design-Build Entity must coordinate with CxA and Owner and schedule all Deferred and Seasonal Testing.

C. Design-Build Entity must make final adjustments to the Operations and Maintenance Manual and as-builts needed for any modifications made during Deferred or Seasonal Testing.

3.08 PROJECT CLOSEOUT

A. Upon completion of all commissioning activities, the CxA will prepare and submit to the Owner a Final Commissioning Report detailing the Cx Plan and all commissioning activities. The CxC will support this effort by providing all Design-Build Entity coordinated commissioning documentation.

3.09 NEAR-WARRANTY-END – REVIEW

A. No later than 90 days prior to the expiration of the first year of Warranty Period, the Design-Build Entity must schedule and participate in a review of the commissioned systems with the Owner, O&M staff, Designers, appropriate Installation Subcontractors, and the CxA to identify any Warranty Issues.

B. A list of Warranty Issues will be developed by the Owner and CxA. The Design-Build Entity will be responsible for and will ensure the cooperation of appropriate Installation Subcontractors to resolve Warranty Issues prior to the end of the Warranty Period.

C. After correcting noted Warranty Issues, the Design-Build Entity must notify the CxA in writing, the CxA will back-checking and verify Warranty Issue as resolved.

D. Issues identified during the Warranty Period will remain Warranty Issues until satisfactory completion by Design-Build Entity and back-check verification by CxA, even if the Warranty Period expires during the correction and back-check period.

END OF SECTION

SECTION 02 1725

EXISTING SITE UTILITIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Shutdown requirements for existing utilities / systems.

B. Location, identification and protection of existing public and private site utilities.

1.02 ASSIGNMENT OF UTILITY LOCATE RESPONSIBILITY

A. The Owner will not provide any utility location service for existing utilities and assigns this responsibility to the Contractor.

1.03 GENERAL

A. The Contractor shall, as part of the work of this contract, locate, identify and protect the existing site utilities wherever demolition and earthwork is performed for this project.

B. The Owner will provide whatever assistance, records and drawings that they have to the Contractor in locating and identifying existing utilities but assumes no responsibility for determining existing utility locations.

C. Several underground utilities on this site are owned by the Owner and therefore will not be located by the public utility location service and require a private utility location service to assist in determining their location.

1.04 SHUTDOWNS OF EXISTING UTILITIES

A. Continuity and function of existing utility services shall be maintained at all times. Utility shutdowns required to facilitate construction work shall be accomplished in accordance with the following requirements.

1. Utility shutdowns shall be scheduled during times dictated by the Utility Owner.

2. Schedule shutdown of utilities with the Owner at least 15 days in advance of shutdown. Owner approval of shutdown, day and time in advance is required.

3. Confirm requests for equipment and utility shutdowns in writing with the Owner.

4. The duration of shutdowns shall be held to maximum approved by Utility Owner.

5. Materials and equipment required for the work to be accomplished during shutdown shall be complete and available on the job for review by Owner on the day prior to the shutdown, if requested. If Contractor is not adequately prepared, the shutdown will be canceled and rescheduled.

6. When requested by Owner, the Owner's personnel will take the responsibility for shutting down and restarting equipment and utilities.

1.05 SAFETY CONSIDERATIONS

A. The Contractor is solely responsible for developing a safety plan to protect workers and the public from injury or harm conforming to all Local, State and Federal requirements and for executing and enforcing it on the Project site.

1. Contractor shall consult with their own Geotechnical Engineering expert for determining soil classification relative to safe sloping of soils.

2. Contractor shall determine safe excavation and dewatering methods, monitor excavations and earthwork operations for safety concerns and provide shoring and other protection as required to protect workers.

3. It is not the intent of the Construction Documents to dictate any unsafe construction means or methods; Contractor shall determine means and methods for achieving the work of this section conforming to their safety plan as required to locate and protect existing utilities.

PART 2 - PRODUCTS

2.01 EXCAVATION EQUIPMENT FOR POT HOLING

A. Excavation Equipment: Contractor shall select the most appropriate equipment for pot holing excavation including the following:

1. Hand-Digging Equipment: Hand shovels, picks and steel bars as appropriate for conditions.

2. Hydro Excavation Equipment: High capacity, truck-mounted unit having the following equipment and capabilities:

a. High capacity, high pressure water pump and jetting equipment, including hoses, probes and heads required for high speed hydro excavation in the soil types and conditions found on project site.

b. High capacity bulk debris wet vacuum and collection tank capable of sucking the soil and water muck away from the existing underground utility without damage to the utility.

c. Operator personnel experienced in the safe and proper operation of the equipment.

3. Active Utilities: Backhoes and other power machine excavation equipment are not suitable for pot holing active utilities that must be protected from damage and maintained operational.

   a. Caution: Do not pot hole for active gas, electrical or pressure lines with a backhoe or other power machinery.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 02 4119

SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Demolition and removal of selected site elements.

2. Salvage of existing items to be reused or recycled.

1.02 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to the County ready for reuse.

C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.03 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to the County that may be uncovered during demolition remain the property of the County.

1. Carefully salvage in a manner to prevent damage and promptly return to the County.

1.04 PRE-INSTALLATION MEETINGS

A. Pre-demolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be selectively demolished.

2. Review structural load limitations of existing structure.

3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.

4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.

5. Review areas where existing construction is to remain and requires protection.

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data: For refrigerant recovery technician.

B. Engineering Survey: Submit engineering survey of condition of building.

C. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and for noise control. Indicate proposed locations and construction of barriers.

D. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure County on-site operations are uninterrupted.

2. Interruption of utility services. Indicate how long utility services will be interrupted.

3. Coordination for shutoff, capping, and continuation of utility services.

4. Use of elevator and stairs.

5. Locations of proposed dust and noise control temporary partitions and means of egress.

6. Means of protection for items to remain and items in path of waste removal from building.

E. Pre-demolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces that might be misconstrued as damage caused by demolition operations. Comply with Section 01 3233 "Photographic Documentation." Submit before Work begins.

F. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

G. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.06 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.07 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.08 FIELD CONDITIONS

A. Conditions existing at time of inspection for bidding purpose will be maintained by the County as far as practical.

B. Notify the County Construction Manager of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. If suspected hazardous materials are encountered, do not disturb; immediately notify the Owner.

D. Storage or sale of removed items or materials on-site is not permitted.

E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.09 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with the County operations.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI / ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 03 3000

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Cast in Place Concrete.

B. Reinforcing Steel.

C. Concrete Formwork, Shoring and Bracing.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Concrete Institute International (ACI):

1. ACI 211.1 – Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.

2. ACI 301 – Specifications for Structural Concrete for Buildings.

3. ACI 305R – Hot Weather Concreting.

4. ACI 306R – Cold Weather Concreting.

5. ACI 318 – Building Code Requirements for Reinforced Concrete and Commentary.

6. ACI 347 – Guide To Formwork For Concrete.

C. American Society for Testing and Materials (ASTM):

1. ASTM C33 – Standard Specification for Concrete Aggregates.

2. ASTM C94 – Standard Specification for Ready-Mixed Concrete.

3. ASTM C150 – Standard Specification for Portland Cement.

4. ASTM C260 – Standard Specification for Air-Entraining Admixtures for Concrete.

5. ASTM C1059 – Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete.

D. American Welding Society (AWS):

1. AWS D1.4 – Structural Welding Code – Reinforcing Steel.

E. Concrete Reinforcing Steel Institute (CRSI):

1. CRSI Manual of Standard Practice.

1.03 QUALITY ASSURANCE

A. Perform form work in accordance with ACI 347R, ACI 301, and ACI 318.

B. Perform concrete work in accordance with ACI 301 and ACI 318.

C. Acquire cement from same source and aggregate from same source for entire project.

D. Follow recommendations of ACI 305R when concreting during hot weather.

E. Follow recommendations of ACI 306R when concreting during cold weather.

1.04 DESIGN RESPONSIBILITY – FORMWORK, BRACING AND SHORING

A. Contractor is responsible for designing and engineering the formwork along with the associated bracing and shoring to withstand forces imposed during construction.

PART 2 - PRODUCTS

2.01 FORM MATERIALS

A. Form Materials (Except at Concrete Exposed to View): Provide per ACI 347R at discretion of Contractor.

B. Form Material for Concrete Exposed to View: APA rated B-B High Density Overlay Concrete Form plywood, Class I, conforming to PS 1.

1. Plywood shall be new, or used once with face free of defects and nail holes filled.

2. Thickness shall be adequate to prevent visible deflection of plywood from force of wet concrete and the resulting waviness of the finish wall surface.

2.02 FORMWORK ACCESSORIES

A. Form Ties: Cone type snap ties designed to break off below face of wall after formwork is stripped, galvanized metal, fixed length, free of defects that could leave holes larger than 1-inch in concrete surface.

1. Strength and spacing as required to resist fresh concrete placement and vibration loads.

B. Shoring and Bracing: Provide materials / system designed by Contractor to withstand imposed construction forces.

C. Form Release Agent: Colorless, non-staining, will not adversely affect surface coatings or waterproofing. Provide form release agent that does not contain diesel fuel, petroleum-based lubricating oils, waxes, or kerosene.

D. Corners: Filleted, rigid plastic type; 3/4 x 3/4-inch size; maximum possible lengths.

E. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

2.03 INSERTS AND EMBEDS

A. Inserts and Embeds: Steel or ductile iron, type and configuration suitable for intended load / connection and rated for intended load with generous margin of safety.

2.04 REINFORCEMENT

A. Reinforcing Steel: Steel reinforcing bars conforming to ASTM A615, Grade 60, or as noted on Structural Drawings.

B. Reinforcement Accessories:

1. Tie Wire: Annealed, minimum 16 gage.

2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

a. Provide stainless steel or plastic components for placement within 1-1/2-inches of weathering surfaces.

2.05 REINFORCEMENT FABRICATION

A. Fabricate concrete reinforcing in accordance with CRSI Manual of Standard Practice.

B. Welding of reinforcement is permitted. Perform welding in accordance with AWS D1.4.

C. Locate reinforcing splices not indicated on drawings at point of minimum stress with specific approval of Structural Engineer.

2.06 CONCRETE MATERIALS

A. Concrete: As specified in General Notes on the Structural Drawings.

1. Cement: Conform to ASTM C150 as specified in the General Notes on the Structural Drawings.

2. Aggregates: Crushed aggregate meeting the requirements of ASTM C33 as specified in Structural General Notes.

3. Water: Potable and complying with ASTM C94.

2.07 CONCRETE ADMIXTURES

A. Admixtures: As specified in Structural General Notes.

B. Exterior Concrete – Air Entrainment: Provide 5 to 7 percent (by volume) using air entrainment admixture conforming to ASTM C260.

2.08 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Provide concrete mix design that will result in concrete as specified in the General Notes on the Structural Drawings. Comply with ACI 211.1 recommendations.

2.09 CONCRETE MIXING

A. Transit Mixers: Comply with ASTM C94.

2.10 CONCRETE ACCESSORIES

A. Bonding Agent: ASTM C1059, Type II acrylic non-redispersable type.

B. Non-Shrink Grout: As specified in General Notes on the Structural Drawings.

C. Concrete Filler: Ardex *Tilt Patch* or approved equivalent.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 03 3001

CONCRETE FLOOR SLABS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Formwork, Reinforcing, Placement, Finishing and Curing for:

1. Concrete Slab on Grade.

B. Shoring and Bracing.

C. Underslab Vapor Retarder Sheet.

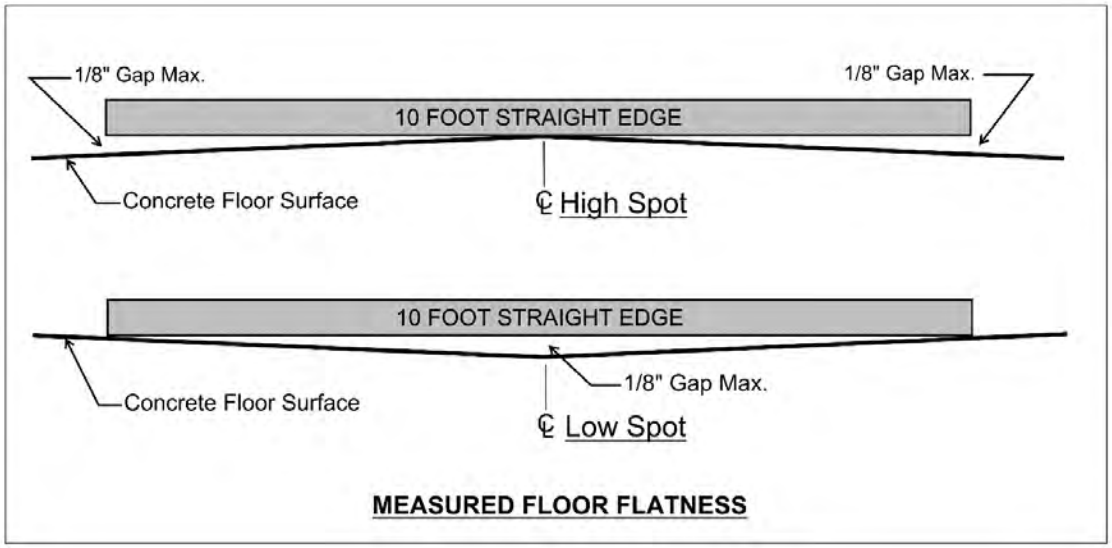
1.02 PERFORMANCE REQUIREMENTS

A. Floor Slab Surface Tolerances: Floor slabs shall be constructed to achieve the following maximum variation of surface flatness tolerance:

1. ADA Accessibility Tolerances: Comply with applicable ADA tolerances shown on the Drawings.

2. Visual Flatness: No rippling, roughness or visible variations in surface flatness.

3. Measured Flatness: 1/4-inch in 10 feet measured in any location, orientation or direction with a 10-foot-long straight edge as shown below:



1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Concrete Institute International (ACI):

1. ACI 211.1 – Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.

2. ACI 301 – Specifications for Structural Concrete for Buildings.

3. ACI 302.1R – Guide for Concrete Floor and Slab Construction.

4. ACI 305R – Hot Weather Concreting.

5. ACI 306R – Cold Weather Concreting.

6. ACI 318 – Building Code Requirements for Reinforced Concrete and Commentary.

7. ACI 347R – Guide to Formwork for Concrete.

C. Americans with Disabilities Act (ADA).

D. American Society for Testing and Materials (ASTM):

1. ASTM C33 – Standard Specification for Concrete Aggregates.

2. ASTM C94 – Standard Specification for Ready-Mixed Concrete.

3. ASTM C150 – Standard Specification for Portland Cement.

4. ASTM C494 – Standard Specification for Chemical Admixtures for Concrete.

5. ASTM E1745 – Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.

E. American Welding Society (AWS):

1. AWS D1.4 – Structural Welding Code – Reinforcing Steel.

F. Concrete Reinforcing Steel Institute (CRSI):

1. CRSI Manual of Standard Practice.

G. International Code Council (ICC):

1. ICC / ANSI A117.1 - Accessible and Usable Buildings and Facilities.

1.04 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

B. Acquire cement from same source and aggregate from same source for entire project.

C. Follow recommendations of ACI 305R when concreting during hot weather.

D. Follow recommendations of ACI 306R when concreting during cold weather.

1.05 REGULATORY REQUIREMENTS

A. Concrete finished as a walking surface shall comply with the following per ICC / ANSI A117.1:

1. Have a slip-resistant finish per Sections 302 and 403.

2. Changes in level shall comply with Sections 403.4 and 303.

3. Openings in floor surfaces shall comply with Section 302.3.

4. ADA Accessibility Tolerances: Comply with ADA tolerances shown on the Drawings.

1.06 CONTRACTOR RESPONSIBILITY

A. Contractor is responsible for designing and engineering the formwork along with the associated bracing and shoring to withstand imposed forces during construction.

B. Contractor is responsible for coordinating and controlling the installation and protection of the entire concrete slab assembly including the capillary break, protection of underslab vapor retarder, selection of concrete design mix conforming to design criteria, control of water added to concrete on the site, placement of concrete, slab finishing methods, slab curing methods and dry-out of the concrete slabs so as to achieve a slab with minimal uncontrolled cracking and conforming to the finish flooring and coating / sealer manufacturer(s) requirements for successful application of their products.

1.07 WARRANTY - MOISTURE CONTROL AND CURING TREATMENT

A. Manufacturer's 15 Year Warranty: Provide the moisture control and curing treatment manufacturer's standard warranty document executed by an authorized company official wherein the manufacturer shall warrant against the adhesive bond of floor coverings / coatings separating from the concrete substrate due to vapor emission rate, relative humidity, water migration or alkalinity of the concrete in the treated areas and shall repair or replace any failed floor moisture control and curing treatment, adhesives, floor coverings and coatings in the failed areas at no expense to the Owner for a period of 15 years.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Concrete Curing Compound: VOC levels of concrete curing compounds used during construction shall not exceed 350 g/l VOC limit.

2.02 FORMWORK MATERIALS

A. Form Materials (Except at Concrete Exposed to View): Provide per ACI 347R at discretion of Contractor.

B. Form Material for Concrete Exposed to View: APA rated B-B High Density Overlay Concrete Form plywood, Class I, conforming to PS 1.

1. Plywood shall be new, or used once with face free of defects and nail holes filled.

2.03 FORMWORK ACCESSORIES

A. Form Release Agent: Colorless, non-staining, will not adversely affect surface coatings or waterproofing. Provide form release agent that does not contain diesel fuel, petroleum-based lubricating oils, waxes, or kerosene.

B. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

2.04 INSERTS AND EMBEDS

A. Inserts And Embeds: Steel or ductile iron, type and configuration suitable for intended load / connection and rated for intended load with generous margin of safety.

2.05 REINFORCEMENT

A. Reinforcing Steel: Steel reinforcing bars conforming to ASTM A615, Grade 60, or as noted on Structural Drawings.

B. Welded Wire Mesh: As specified on General Notes on the Structural Drawings.

C. Reinforcement Accessories:

1. Tie Wire: Annealed, minimum 16 gage.

2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

a. Where reinforcement is installed over underslab vapor retarder, provide metal or concrete support pads that will not damage the vapor retarder.

b. Provide stainless steel or plastic components for placement within 1-1/2 inches of weathering surfaces.

2.06 REINFORCEMENT FABRICATION

A. Fabricate concrete reinforcing in accordance with CRSI Manual of Standard Practice.

B. Welding of reinforcement is permitted. Perform welding in accordance with AWS D1.4.

C. Locate reinforcing splices not indicated on drawings at point of minimum stress.

D. No bending or straightening of reinforcing shall be permitted after partial embedment in concrete.

2.07 CONCRETE MATERIALS

A. Concrete: As specified in General Notes on the Structural Drawings.

1. Cement: Conform to ASTM C150 as specified in the General Notes on the Structural Drawings.

2. Flyash / Slag: Not allowed for slabs on grade.

3. Aggregates: Crushed aggregate meeting the requirements of ASTM C33 as specified in Structural General Notes.

4. Water: Potable and complying with ASTM C94.

2.08 CONCRETE ADMIXTURES

A. Admixtures: As specified in General Notes on the Structural Drawings.

B. Water-Reducing Super-Plasticizer Admixture – Conform to ASTM C494, Type F, provide water reducing, super-plasticizing admixture to concrete mix as required to maintain the water / cement ratio specified herein and improve workability and slump required for proper placement, consolidation and finishing.

2.09 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Provide concrete mix design that will result in concrete as specified in the General Notes on the Structural Drawings and this section. Comply with ACI 211.1 recommendations. Conform with the following special requirements:

1. Special Requirements: In addition to the requirements of the General Notes on the Structural Drawings, conform to the following:

   a. Adjust the concrete mix to achieve concrete with a water / cement ratio of 0.40 or less.

   b. Add Water-Reducing Super-Plasticizer Admixture.

   c. Concrete slabs with moisture sensitive flooring / adhesive shall have a pH of 9 or less after curing and dehydration.

2.10 CONCRETE MIXING

A. Transit Mixers: Comply with ASTM C94.

2.11 CONCRETE ACCESSORIES

A. Control Joint: T-shaped vinyl control joint.

   1. W.R. Meadows; *Speed-E-Joint.*

   2. Zip Strip.

   3. Or similar.

B. Bonding Agent: ASTM C1059, Type II acrylic non-redispersable type.

C. Non-Shrink Grout: As specified in General Notes on the Structural Drawings.

2.12 VAPOR RETARDER FOR SLAB ON GRADE

A. Performance Requirement: The installed underslab vapor retarder shall provide an air and vapor tight sheet barrier under the entire building floor slab conforming to the following:

B. Vapor Retarder Sheet: 15 mil polyolefin film manufactured from virgin resins; conforming to ASTM E1745 Class A; the following products are acceptable.

   1. Stego Industries; *Stego Wrap 15 Mil.*

   2. Fortifiber; *Moistop Ultra 15*.

   3. WR Meadows, Inc.; *Perminator 15 Mil*.

   4. Insulation Solutions; *Viper Vaporcheck II 15-mil*.

C. Accessories For Underslab Vapor Retarder:

   1. Tape – Perimeter Attachment To Concrete: Stego *Crete Claw Tape* or Stego *StegoTack Tape*, or approved.

2. Tape – Seams, Tears And Splices: Stego *Stego Tape*, or approved.

3. Mastic: Stego *Stego Mastic*, or approved.

4. Boots at Pipe / Conduit Penetrations: Factory fabricated pipe boots from vapor retarder material with welded seam vapor tight construction, Stego *Pre-Cut Pipe Boots* or approved.

5. Tie Wraps (Cable Ties): Heavy duty UV stabilized Nylon 6/6, minimum 120 pound working strength, size as required to fit condition, Unicorp *Cable Ties* or approved equal.

2.13 SCREED SYSTEM

A. Contractor shall select a screed support system that does not penetrate or damage the underslab vapor retarder while providing the level control required to achieve the floor slab surface tolerances specified.

B. Coordinate flush pipe and conduit penetrations through slab with Divisions 21 through 28 if required to accommodate screed system selected.

2.14 MOISTURE CONTROL AND CURING TREATMENT

A. Moisture Control and Curing Treatment: Liquid field-applied penetrating colloidal treatment that reacts with the free alkali in concrete to form a permanent colloidal gel within the concrete to prevent moisture migration through the concrete, reduce shrinkage cracking and slab curl and seal concrete from the inside out to provide a superior cure and prevent premature dry out of the concrete.

1. Manufacturer / Product: Spray-Lock *SCP-327* (basis of design, specified)

2. Treatment Area: Treat entire surface area of concrete floor slabs.

3. Manufacturer Warranty: Provide 15 year warranty by Spray-Lock on floor covering / sealing installation as specified in Part 1 of this section.

B. Cold Weather Curing: Refer to additional requirements specified in Structural General Notes, including use of insulating blankets to prevent floor slabs from freezing temperatures.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 03 3002

CONCRETE FLOOR SLAB PREPARATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Preparation of Concrete Slabs scheduled to receive Coatings, Adhesives or Finish Flooring.

1.02 PERFORMANCE REQUIREMENTS

A. General: Prepare concrete slabs in conformance with ASTM F710, finish flooring manufacturer's requirements and the following.

1. Preparation work specified herein is not applicable to exposed to view concrete floors scheduled to receive a sealer which is specified in Section 09 6100.

2. Rough or Uneven Slabs: Grind smooth any surface roughness, ridges, bumps or out of tolerance high areas. Fill minor low spots, cracks, joints, holes, out of tolerance low areas and other defects with cementitious underlayment to achieve smooth, flat, hard surface suitable for finish flooring installation. Prepare substrate by shot blasting and install cementitious underlayment in strict conformance to manufacturer's installation instructions. Slab surface shall be smooth and free of waviness, irregularities or unevenness of plane upon completion.

3. Contaminated or Stained Concrete (oil, grease, wax, asphalt, etc.): Remove contaminated concrete by mechanical means (shot blasting, grinding, scabbling, jackhammer, etc.) and patch affected area with cementitious underlayment or new concrete slab as applicable condition. Do not use solvents or removers.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM F710 – Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.

1.04 ENVIRONMENTAL REQUIREMENTS

A. The roofing must be installed and all exterior openings closed in.

B. Areas shall be maintained in a heated and dry condition.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Undercoats: VOC levels of undercoats used during construction shall not exceed 100 g/l VOC limit.

2.02 CEMENTITIOUS UNDERLAYMENT

A. Cementitious Underlayment / Subfloor Filler: Portland cement-based underlayment formulated specifically for patching and filling concrete slabs on grade, 4,200 psi compressive strength; capable of feather edge installation; not adversely affected by moisture or alkali.

1. Manufacturer / Product: Ardex *SD-P InstantPatch* or similar with equal or better compressive strength and performance characteristics.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 04 2000

UNIT MASONRY

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Concrete Masonry Units (CMU), Structural.

B. Reinforcing Steel.

C. Mortar.

D. Grout.

E. Masonry Accessories.

F. Clear Water Repellent Sealer.

1.02 PERFORMANCE REQUIREMENTS

A. Construction Tolerances:

1. Maximum Variation from Unit to Adjacent Unit: 1/16-inch.

2. Maximum Variation from Plane of Wall: 1/4-inch in 10 feet and 1/2-inch in 20 feet or more.

3. Maximum Variation from Plumb: 1/4-inch per story non-cumulative.

4. Maximum Variation from Level Coursing: 1/8-inch in 3 feet; 1/4-inch in 10 feet; 1/2-inch in 30 feet.

5. Maximum Variation of Joint Thickness: 1/16-inch in 3 feet.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Concrete Institute / American Society of Civil Engineers / The Masonry Society (ACI / ASCE / TMS):

1. ACI 530.1 / ASCE 6 / TMS 602 – Specification for Masonry Structures.

C. American Society for Testing and Materials (ASTM):

1. ASTM A153 – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

2. ASTM A615 – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.

3. ASTM C90 – Standard Specification for Load-Bearing Concrete Masonry Units.

4. ASTM C94 – Standard Specification for Ready-Mixed Concrete.

5. ASTM C144 – Standard Specification for Aggregate for Masonry Mortar.

6. ASTM C150 – Standard Specification for Portland Cement.

7. ASTM C207 – Standard Specification for Hydrated Lime for Masonry Purposes.

8. ASTM C270 – Standard Specification for Mortar for Unit Masonry.

9. ASTM C404 – Standard Specification for Aggregates for Masonry Grout.

10. ASTM C476 – Standard Specification for Grout for Masonry.

11. ASTM C780 – Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.

12. ASTM C1019 – Standard Method of Sampling and Testing Grout.

D. International Building Code (IBC).

1.04 MORTAR AND GROUT PRECONSTRUCTION TESTING

A. Testing will be conducted by an independent test agency.

B. Mortar Mixes: Test mortars prebatched by weight in accordance with ASTM C780 recommendations for preconstruction testing.

1. Test results will be used to establish optimum mortar proportions and establish quality control values for construction testing.

C. Grout Mixes: Test grout batches in accordance with ASTM C1019 procedures.

1. Test results will be used to establish optimum grout proportions and establish quality control values for construction testing.

1.05 REGULATORY REQUIREMENTS

A. Conform to requirements of International Building Code.

B. Exterior wall construction shall comply with IBC, Chapters 14 and 21 as applicable.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

B. Protect masonry units from contact with the earth or from exposure to the weather and becoming wet.

1.07 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacturing products specified in this section with a minimum three years of documented experience.

B. Installer Qualifications: Experienced in performing work of this section with a minimum five years of documented experience in the installation of work similar to that required for this project.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Cold Weather Requirements: Comply with Section 1.8 C of ACI 530.1 / ASCE6 / TMS 602.

B. Hot Weather Requirements: Comply with Section 1.8 D of ACI 530.1 / ASCE6 / TMS 602.

C. See Structural General Notes for additional requirements for all-weather masonry construction.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Masonry Sealers: VOC levels of masonry sealers used during construction shall not exceed 100 g/l VOC limit.

2.02 CONCRETE MASONRY UNITS

A. Concrete Masonry Units (CMU), Structural: Comply with referenced standards, Structural General Notes and as follows:

1. Cementitious Materials: Portland Cement: ASTM C150, Type I, I / II or II.

2. Size for Structural CMU: Standard units with nominal face dimensions of 16 x 8 inches and depths as indicated on Drawings.

3. Special Shapes: Provide non-standard blocks configured for corners, headers, and other conditions. Exposed ends of CMU shall match exposed face appearance and pattern.

   a. CMU Caps: Mutual Materials CMU Sloped Cap, 10 x 4 x 16 sloped cap; 3-3/4-inch x 9-5/8-inch x 15-5/8-inch.

4. Hollow Load Bearing Units: ASTM C90.

   a. Weight:

      1) Exposed Above Grade: Medium weight (minimum 115 pounds per cubic foot density).

      2) Concealed Below Grade: Normal weight.

   b. Exposed Faces / Ends: Ground Face.

   c. Colors:

      1) Refer to Drawings.

      2) Pigments for Integral Color CMU: Permanent non-fading, non-leaching integral color pigment, added to concrete mix at casting plant; manufactured by Davis, Solomon or approved equal.

   d. Moisture-Control Admixture – Block: Water repellent compound designed to reduce capillarity added in recommended amounts. Provide for exterior and integrally colored CMU.

      1) Acceptable Products:

         a) Grace; *DRY-BLOCK Mortar Admixture*.

         b) BASF Corporation; *MasterPel*.

         c) ACM Chemistries; *RainBloc*.

         d) Sika*; Sikamix AE.*

2.03 REINFORCING STEEL

A. Reinforcing Steel: ASTM A615, Grade 60 (Grade A706 for welded bars), deformed and as shown on the Structural Drawings.

B. Reinforcing Steel Positioners: 9 gauge steel wire, hot dipped galvanized per ASTM A153, size to fit CMU and rebar shown on Drawings; *RB Rebar Positioners* by Hohmann and Barnard, *Figure 8 Rebar Positioners* by Wire-Bond, or similar.

2.04 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C150 Type I - Normal; standard gray color.

B. Hydrated Lime: ASTM C207, Type S.

C. Mortar Aggregate: ASTM C144.

D. Grout Aggregate: ASTM C404.

E. Moisture-Control Admixture – Mortar and Grout: Water repellent compound designed to reduce capillarity added in recommended amounts. Provide for mortar and grout used for exterior and integrally colored CMU.

1. Acceptable Products:

a. Grace; *DRY-BLOCK Mortar Admixture*.

b. BASF Corporation; *MasterPel*.

c. ACM Chemistries; *RainBloc*.

d. Sika*; Sikamix AE.*

F. Pigments for Colored Mortar: Permanent non-fading, non-leaching integral color pigment made from iron or chromium oxides with demonstrated stability and colorfastness.

1. Color(s): Match CMU color or as noted on the Drawings.

G. Water: Clean and potable.

H. Bonding Agent: Latex type.

2.05 MORTAR MIXES

A. Mortar for Structural Unit Masonry: ASTM C270, Property Specification, compressive strength as specified in Structural General Notes.

1. Setting Mortar: Type as noted in Structural Drawings General Notes.

B. Mortar for Non-Structural (Veneer) Unit Masonry: ASTM C270, Property Specification.

1. Setting Mortar: Type S.

C. Colored Mortar: Proportion selected pigments and other ingredients to match specified color, without exceeding manufacturer's recommended pigment-to-cement ratio.

2.06 GROUT MIXES

A. Grout Mix: Comply with ASTM C476. Strength at 28 days as specified in Structural General Notes; slump as specified in Structural General Notes; provide premixed type in accordance with ASTM C94.

1. Fine grout for spaces with smallest horizontal dimension of 2 inches or less.

2. Coarse grout for spaces with smallest horizontal dimension greater than 2 inches.

2.07 MASONRY ACCESSORIES

A. Preformed Control Joints: Rubber material. Provide with corner and tee accessories, fused joints.

B. Joint Filler: Closed cell rubber; oversized 50 percent to joint width; self-expanding; 1/4-inch wide x by maximum lengths available.

C. Cleaning Solution: Not harmful to masonry work or adjacent materials.

2.08 CLEAR WATER REPELLENT SEALER

A. Sealer for CMU: Specified in Section 09 9000.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 05 1200

STRUCTURAL STEEL

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Building Structural Steel.

1.02 PERFORMANCE REQUIREMENTS

A. Maintain erection tolerances of structural steel within AISC requirements specified in the Structural General Notes and the following:

1. Maximum Variation from Plumb: 1/4-inch per story, non-cumulative.

2. Maximum Offset from True Alignment: 1/4-inch.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Institute of Steel Construction, Inc. (AISC):

1. AISC 303 – Code of Standard Practice for Steel Buildings and Bridges.

2. AISC 325 – Steel Construction Manual.

C. American Society for Testing and Materials (ASTM):

1. ASTM A123 – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

D. American Welding Society (AWS):

1. AWS D1.1 – Structural Welding Code - Steel.

E. International Building Code (IBC).

F. The Society for Protective Coatings (SSPC):

1. SSPC-PA 1 – Shop, Field, and Maintenance Painting of Steel.

2. SSPC Paint 20 – Zinc-Rich Coating (Type I Inorganic ad Type II Organic).

3. SSPC Paint 29 – Zinc Dust Sacrificial Primer, Performance Based.

4. SSPC SP-3 – Power Tool Cleaning.

5. SSPC SP-6 – Commercial Blast Cleaning.

1.04 QUALITY ASSURANCE

A. Detailer Qualifications: Detailer shall have (5) years minimum experience on similar projects of equal or larger complexity and scope.

B. Fabricator Qualifications: Steel fabrications shall be performed by a Fabricator certified by the American Institute of Steel Construction, Category Standard, or the Fabricator shall have a minimum of (5) years of experience in the fabrication of structural steel on similar projects of equal or larger complexity and scope. Provide history upon request.

C. Fabricate structural steel members in accordance with AISC 325 and AISC 303.

1. Comply with Section 10 of AISC 303 for architecturally exposed structural steel.

D. Erector Qualifications: Erector shall be certified by the American Institute of Steel Construction (AISC), Category CSE, or the Erector shall have a minimum of (5) years' experience in erecting structural steel on similar projects of equal or larger complexity and scope. Provide history upon request.

E. Welders: Qualified within the previous 12 months for type of welding required for this project in accordance with AWS D1.1 and certified as required by local Building Official having jurisdiction on this project.

1.05 FIELD MEASUREMENTS

A. Verify that field measurements and conditions are as shown on Drawings, shop drawings, or as instructed by product manufacturer.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Zinc Rich Primer: VOC levels of zinc rich primers used during construction shall not exceed 340 g/l VOC limit.

2. Metallic Pigmented Coating: VOC levels of metallic pigmented coatings used during construction shall not exceed 500 g/l VOC limit.

3. High Temperature Coatings: VOC levels of masonry sealers used during construction shall not exceed 420 g/l VOC limit.

2.02 MATERIALS

A. Structural Steel Members: As specified in the Structural General Notes.

B. Structural Tubing: As specified in the Structural General Notes.

C. Bolts, Anchorbolts, Nuts, Washers, Shear Studs: As specified in the Structural General Notes.

D. Miscellaneous Structural Items and Accessories: As specified in the Structural General Notes.

E. Non-Shrink Grout: As specified in the Structural General Notes.

F. Welding Materials: As specified in the Structural General Notes.

G. Shop and Touch-Up Primer: SSPC Paint 20 or SSPC Paint 29, zinc rich primer.

H. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Tnemec *PerimePrime Series 394* or approved equal.

2.03 FABRICATION

A. Coordinate and confirm field dimensions and conditions on site prior to shop fabrication.

B. Shop fabricate to greatest extent possible.

C. Fabricate structural steel members in accordance with AISC 325 and AISC 303.

1. Comply with Section 10 of AISC 303 for architecturally exposed structural steel (AESS).

2. Camber steel members as indicated on Drawings. Fabricate beams with rolling camber up.

D. Continuously seal joined members exposed to weather by continuous welds. Grind welds exposed to view smooth.

E. Fabricate connections for bolt, nut, and washer connectors.

F. Welding shall conform to Structural Welding Code AWS D1.1.

2.04 SHOP PRIME FINISHES

A. Interior Structural Steel: Shop prime fabricated steel members with primer specified in accordance with SSPC-PA 1.

1. Concealed Condition: Shop prime fabricated steel members with primer specified.

a. Prepare surfaces to be finished in accordance with SSPC-SP 3, Power Tool Cleaning.

2. Structural Steel Exposed To View: Shop prime.

a. Prepare surfaces to be finished in accordance with SSPC-SP 3, Power Tool Cleaning.

b. Field Paint per Section 09 9000.

B. Galvanized Structural Steel:

1. Structural Steel Members that are on the building exterior, exposed to outdoor atmosphere or so indicated on the Drawings shall be hot-dip galvanized to comply with ASTM A123. Provide minimum 2.0 oz / sq ft galvanized coating.

2. Surface preparation and shop priming shall be accomplished in dry, temperature controlled environment conforming to primer manufacturer's application requirements.

a. Prepare surfaces to be finished in accordance with SSPC-SP 6, Commercial Blast Cleaning.

b. Shop prime surfaces with primer immediately after surface preparation is completed.

2.05 SOURCE QUALITY CONTROL

A. Owner will engage an independent testing and inspection agency to perform shop inspections and test and prepare test reports.

1. Special inspections for shop fabrications of this section are waived where fabrication is performed on the premises of a fabricator registered and approved in accordance with IBC Section 1704.2; provide documentation and approval from Building Official having jurisdiction.

B. Provide testing agency with access to places where structural steel work is being fabricated to allow required inspections and testing.

C. Correct deficiencies or remove and replace structural steel that inspections and test reports indicate do not comply with specified requirements.

D. Non-conforming work will be reinspected and tested for compliance at Contractor's expense.

E. Schedule of Required Inspections and Tests: Refer to Structural Drawings for quality assurance and special inspection requirements for shop fabrications.

1. Testing agency shall confirm current qualifications of each shop welder working on this project.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 05 5000

METAL FABRICATIONS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Custom Exterior Canopy / Trellis Structures.

B. Exterior Window Shades.

C. Pipe Bollards.

D. Steel Ladders.

E. Concealed Bracket Counter Support.

F. Miscellaneous Framing and Supports.

1.02 PERFORMANCE REQUIREMENTS

A. Installation Tolerances:

1. Maximum Variation from Plumb: 1/4-inch per story, non-cumulative.

2. Maximum Offset from True Alignment: 1/4-inch.

3. Maximum Out-of-Position: 1/4-inch.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American National Standards Institute (ANSI):

1. ANSI A14.3 – American National Standard for Ladders - Fixed - Safety Requirements.

C. American Society for Testing and Materials (ASTM):

1. ASTM A36 – Standard Specification for Carbon Structural Steel.

2. ASTM A53 – Standard Specification for Pipe, Steel, Black and Hot Dipped, Zinc Coated, Welded and Seamless.

3. ASTM A123 – Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.

4. ASTM A153 – Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware.

5. ASTM A283 – Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates.

6. ASTM A325 – Standard Specification for Structural Bolts, Steel, Heat Treated, 120 / 105 ksi Minimum Tensile Strength.

7. ASTM A500 – Standard Specification for Cold Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

8. ASTM A1008 – Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High Strength Low Alloy, High Strength Low Alloy with Improved Formability, Solution Hardened and Bake Hardenable.

D. American Welding Society (AWS):

1. AWS D1.1 – Structural Welding Code – Steel.

2. AWS D1.4 – Structural Welding Code – Reinforcing Steel.

E. The Society for Protective Coatings (SSPC):

1. SSPC Paint 20 – Zinc-Rich Coating (Type I Inorganic ad Type II Organic).

2. SSPC SP-6 – Commercial Blast Cleaning.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Experienced in performing work of this section with a minimum five years documented experience in the installation of work similar to that required for this project.

B. Welders: Qualified within the previous 12 months for type of welding required for this project in accordance with AWS D1.1 and certified as required by local Building Official having jurisdiction on this project.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Zinc Rich Primer: VOC levels of zinc rich primers used during construction shall not exceed 340 g/l VOC limit.

2. Metallic Pigmented Coating: VOC levels of metallic pigmented coatings used during construction shall not exceed 500 g/l VOC limit.

3. High Temperature Coatings: VOC levels of masonry sealers used during construction shall not exceed 420 g/l VOC limit.

2.02 MATERIALS

A. Steel Sheet: ASTM A1008.

B. Solid Steel Bars, Plates and Shapes: ASTM A36.

C. Steel Tubing: ASTM A500, Grade B.

D. Plates: ASTM A283.

E. Pipe: ASTM A53, Grade B Schedule 40, black finish.

F. Bolts, Nuts, and Washers: ASTM A325 galvanized to ASTM A153 for galvanized components.

G. Welding Materials: AWS D1.1; type required for materials being welded.

H. Shop and Touch-Up Primer: Tnemec *PerimePrime Series 394* or approved equal.

I. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Tnemec *PerimePrime Series 394* or approved equal.

2.03 FABRICATION

A. Coordinate and confirm field dimensions and conditions prior to fabrication.

B. Fit and shop assemble items in largest practical sections, for delivery to site.

C. Fabricate items with joints tightly fitted and secured.

D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.04 FABRICATED ITEMS

A. Custom Exterior Canopy / Trellis Structure: Fabricate welded steel canopies using steel shapes and to configuration shown on the Drawings.

1. Fabricate as an exposed to view architectural steel fabrication.

2. Field Connections: Fabricate for bolted connections, field welding not allowed.

3. Finish: Hot dipped galvanized after fabrication in sections.

4. Finish: Field painted by Section 09 9000.

B. Custom Exterior Window Shades: Fabricate welded steel shades using steel shapes and to configuration shown on the Drawings.

1. Fabricate as an exposed to view architectural steel fabrication.

2. Field Connections: Fabricate for bolted connections, field welding not allowed.

3. Finish: Hot dipped galvanized after fabrication in sections.

4. Finish: Field painted by Section 09 9000.

C. Pipe Bollards: Schedule 40 steel pipe conforming to ASTM A53, size as shown on Drawings, hot-dipped galvanized after fabrication.

1. Finish: Field painted by Section 09 9000.

D. Steel Ladders: Welded steel construction, configuration as shown on Drawings and as required to accommodate installation conditions, fabricated in compliance with ANSI A14.3.

1. Side Rails: 2-1/2-inch x 3/8-inch steel members spaced 20-inches apart, or as shown on Drawings.

2. Rungs: One-inch diameter solid round bar spaced 12-inches on center welded to side rails.

a. Space rungs 7-inches from wall surface.

b. Align top rung flush with floor level.

3. Floor Mounting Brackets: 2-1/2-inch x 2-1/2-inch x 1/4-inch steel angle welded to side rails, provide hole for 1/2-inch anchor bolt connection to floor structure.

4. Wall Mounting Brackets: 2-1/2-inch x 3/8-inch steel members fabricated to shape as required to accommodate mounting conditions, locate brackets maximum 4 feet on center, weld to side rails; provide hole for 1/2-inch anchor bolt connection to building structure.

5. Roof access ladders shall extend from floor level to within 4-inches of curb top on roof hatch, top rung shall be no more than 12-inches below curb top on roof hatch.

a. Interior Ladders: Shop prime paint.

b. Exterior Ladders: Hot dipped galvanized.

E. Concealed Bracket Counter Support: Welded steel angle construction, size and configuration as shown on Drawings.

1. Provide holes for attachment to wall framing.

2. Finish: Shop prime paint.

3. Capable of supporting a 300 pound load without failure or deflection.

F. Miscellaneous Framing and Supports: As required for supporting the work of other trades, fabricate from steel shapes, plates, and bars with welded connections to sizes, shapes, and profiles shown or required to accommodate loads and installation conditions.

1. Use mitered joints at corners.

2. Cut, drill, and tap units to receive hangers, hardware, and similar items.

3. Hot-dip galvanize items on building exterior, exposed to exterior atmosphere or so indicated on the Drawings; prime paint other items.

G. Other Miscellaneous Fabricated Steel Items Shown on The Drawings: Fabricate as shown.

2.05 FINISHES – STEEL

A. Prime Paint:

1. Prepare surfaces to be primed in accordance with paint manufacturer's recommendations and SSPC SP-6.

2. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

3. Apply one coat of prime paint in conformance with manufacturer's installation instructions and recommended application rates.

B. Galvanizing: Galvanize after fabrication to ASTM A123. Provide minimum 2.0 oz / sq ft galvanized coating.

1. Hot-dip galvanize items on building exterior, exposed to exterior atmosphere or so indicated in this section or on the Drawings.

C. Field Painted Finish: Specified in Section 09 9000.

2.06 FABRICATION TOLERANCES

A. Squareness: 1/8-inch maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: No misalignment allowed, fabricate flush.

C. Maximum Misalignment of Adjacent Members: 1/16-inch.

D. Maximum Bow: 1/16-inch in 48-inches.

E. Maximum Deviation From Plane: 1/16-inch in 48-inches.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 06 1000

ROUGH CARPENTRY

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Rough Carpentry.

1.02 PERFORMANCE REQUIREMENTS

A. Installation Tolerances:

1. Framing Members: 1/4-inch from true position, maximum, provided other tolerances are met; does not apply to face alignment of wall framing members.

2. Wall Plane (Flatness): Maximum of 1/4-inch in 10-feet out of plane (this equates to no more than 1/8-inch gap at each end of a 10-foot long straightedge center on high spot in wall, or no more than 1/8-inch gap at center of a 10-foot long straightedge centered on low spot in wall).

3. Wall Out of Plumb: Maximum 1/8-inch.

4. Surface Flatness of Roof Decks: 1/8-inch in 10-feet maximum, and 1/4-inch in 30-feet maximum.

5. Variation from Plane (Other than Floors): 1/8-inch in 10-feet maximum, and 1/4-inch in 30-feet maximum.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Wood Protection Association (AWPA):

1. AWPA Standard U1 – Use Category System: User Specification for Treated Wood.

2. AWPA UCFB – Fire Retardant.

C. International Code Council (ICC).

D. Voluntary Product Standard (PS):

1. PS 1 – Structural Plywood.

2. PS 20 – American Softwood Lumber Standard.

E. West Coast Lumber Inspection Bureau (WCLB).

F. Western Wood Products Association (WWPA).

1.04 QUALITY ASSURANCE

A. Lumber: Comply with PS 20 and approved grading rules and inspection agencies.

1. Acceptable Lumber Inspection Agencies: WCLB and WWPA.

B. Exposed-to-View Rough Carpentry: Submit manufacturer's certificate that state products meet or exceed specified requirements, in lieu of grade stamping.

C. Framing Carpenters: Only skilled, journeyman carpenters, that have successfully completed a 4 year, state approved apprenticeship program for wood carpentry construction (or equivalent documented experience), and apprentice carpenters working under the direct supervision of an experienced journeyman carpenter, are approved to do the carpentry work for this project.

1.05 DELIVERY, STORAGE AND HANDLING

A. Cover wood products to protect against moisture and growth of mold / mildew.

B. Support stacked products to prevent deformation and to allow air circulation.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Adhesives: VOC levels of adhesives used during construction shall not exceed 50 g/l VOC limit.

2.02 DIMENSION LUMBER

A. Species and Grade: As specified in the General Notes on the Structural Drawings.

B. Sizes: Nominal sizes as indicated on drawings, S4S.

C. Moisture Content: Maximum 19 percent, stack or kiln-dried.

D. Backing: 2 x 6 and larger solid lumber, cut from No. 2 Douglas Fir / Larch dimension lumber that is free of large knots, splits or other defects that would reduce the strength of the backing piece.

E. Rainscreen Cavity Furring: 1 x 4 or as shown on the Drawings, cut from Preservative Pressure Treated No. 2 Douglas Fir / Larch dimension lumber that is free of large knots, splits or other defects that would reduce the strength of the furring. Treat all cut ends with preservative treatment.

2.03 CONSTRUCTION PANELS

A. APA Rated Plywood Roof Sheathing: As specified in the General Notes on the Structural Drawings. Plywood shall be exterior rated (plies and glue).

B. APA Rated Plywood Wall Sheathing: As specified in the General Notes on the Structural Drawings. Plywood shall be exterior rated (plies and glue).

C. Electrical / Phone Component Mounting: 3/4-inch thick APA Rated Fir plywood, sanded face, B-C, exterior grade, PS 1, fire retardant treated.

2.04 ACCESSORIES

A. Fasteners, Anchors and Anchor bolts: As specified in the General Notes on the Structural Drawings for structural applications.

1. Fasteners on Building Exterior, in High Humidity or in Preservative Pressure Treated Wood: Stainless steel or hot-dipped galvanized.

a. Use only stainless steel fasteners in wood treated with ACZA preservative treatment.

2. Anchor For Concrete and Masonry: As specified in the General Notes on the Structural Drawings for structural applications and the following:

a. Concealed Location: Zinc plated steel, expansion type fasteners manufactured by Rawl or Hilti.

b. Exposed Location: Hot-dipped galvanized or stainless steel.

c. Preservative Pressure Treated Wood: Hot-dipped galvanized or stainless steel.

1) Use only stainless steel anchors in wood treated with ACZA preservative treatment.

B. Die-Stamped Framing Connectors: As specified on the Structural Drawings; hot dipped galvanized steel, ICC approved, Simpson *StrongTie* or approved equal.

1. Connectors Exposed To Weather: Hot dip galvanize after fabrication.

C. Joist Hangers: As specified on the Structural Drawings; hot dipped galvanized steel, ICC approved, sized to suit framing conditions and loads, Simpson *StrongTie* or approved equal.

D. Sheathing Clips: H-shaped extruded aluminum, match thickness of panel.

E. Construction Adhesive: APA AFG-01, Waterproof, solvent base, air cure type, cartridge dispensed.

F. Sheet-Applied Air / Vapor Barrier System at Roof: Specified in Section 07 4000 and Section 07 5400.

G. Building Paper: 30 lb. asphalt saturated felt.

H. Sill Gasket on Top of Foundation Wall: 1/4-inch thick, match width of sill plate, ribbed closed cell plastic foam from continuous rolls; Owens Corning *FoamSealR* or similar.

I. Metal Screen (Insect Screen): Heavy-duty hot-dipped galvanized steel woven wire mesh, 1/8-inch square opening, supplied in rolls.

1. Staples for Attaching Metal Screen: Galvanized or stainless steel, 16 gauge, 7/16-inch crown, 1-inch minimum length, power actuated.

2.05 FACTORY WOOD TREATMENT

A. Fire Retardant Treatment: AWPA Treatment UCFB, Exterior Type, chemical treatment pressure impregnated.

B. Preservative Pressure Treatment of Lumber Above Grade: AWPA Treatment U1 using waterborne preservative designated in AWPA UC3B as suitable for above grade use to 0.25 percent retention.

1. Borate preservative treatment is not allowed.

2. Kiln dry after treatment to maximum moisture content of 19 percent.

3. Do not incise wood exposed to view in the finish construction.

4. Treat wood in contact with roofing, flashing, or waterproofing.

5. Treat wood in contact with masonry or concrete.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 06 1733

SOLID WEB WOOD JOISTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Solid Web Wood Joists.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. International Building Code (IBC).

C. International Code Council (ICC):

1. ICC ES – International Code Council Evaluation Service Reports.

1.03 QUALITY ASSURANCE

A. Joists shall be designed and manufactured to the standards set forth in a current, approved ICC ES Report (International Code Council Evaluation Service) for the joists.

B. Joists shall be manufactured in a plant approved for fabrication by the building code and under the supervision of an approved third party inspection agency.

C. Manufacturer: Company specializing in manufacturing the products specified in this section with a minimum three years of documented experience.

D. Design joists under direct supervision of a Professional Structural Engineer experienced in design of products of this type and licensed as such in the state of California.

1.04 REGULATORY REQUIREMENTS

A. Conform to applicable code for loads, seismic zoning, and other governing load criteria.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle joists in conformance with manufacturer's instructions.

B. Protect joists from warping or other distortion by stacking in vertical position, braced to resist movement.

C. Cover joists to prevent them from weather and moisture, store up off ground.

1.06 FIELD MEASUREMENTS

A. Verify that shop drawing dimensions match actual field measurements.

PART 2 - PRODUCTS

2.01 SOLID WEB WOOD JOISTS

A. Joist Design: Fabricator is responsible for the structural engineering design for joists and any connections not shown on the Drawings.

1. Engage the services of a qualified professional Structural Engineer, experienced in design of solid web wood joists and currently registered in the state of California, to provide the structural engineering design.

2. Design joists in conformance the following:

a. Design solid web wood joists to withstand design loads and with deflection factor(s) in conformance with the requirements shown on the Structural Drawings.

b. Design Criteria listed in the General Notes on the Structural Drawings.

c. International Building Code.

3. Work of Other Trades: Review and coordinate work of other trades that interface with, connect to, pass through or are supported by the solid web wood joists.

a. Make whatever provisions are necessary to the design, layout and fabrication of the solid web wood joists to accommodate work by others while maintaining their specified structural capacity.

b. Design solid web wood joists to allow for support, connection and installation of mechanical ducts, pipes or other large items supported by joists.

B. Manufacturers: The following manufacturers may provide solid web wood joists subject to their ability to conform to the requirements of the Drawings and this section:

1. Anthony-Domtar, Inc.

2. Pacific Woodtech Corporation.

3. Redbuilt LLC.

4. Weyerhaeuser.

2.02 MATERIALS

A. Joist Materials: Flange members, web members, adhesives and connectors shall conform to the provisions of a current, approved ICC ES Report.

B. Joist Bridging: Type, size and spacing recommended by joist manufacturer.

2.03 ACCESSORIES

A. Wood Blocking and Framing for Openings: As shown on Structural Drawings and required by joist design.

B. Roof Overhang Outlookers: Provide solid 2x wood outlookers for roof overhangs where noted on Drawings or wherever overhangs are exposed to view.

C. Fasteners: Hot dip galvanized steel, type to suit application.

2.04 FABRICATION

A. Verify dimensions and site conditions prior to fabrication.

B. Fabricate joists to achieve the architectural and structural requirements shown on the Drawings and specified herein and in accordance with approved shop drawings and the current ICC ES Report.

C. Ventilation Holes: Provide holes in web to allow code required ventilation above joists with batt insulation installed in joist space. Coordinate location of holes in web with location of top of insulation to allow unrestricted ventilation above insulation and below roof deck. Coordinate which joists require vent holes, do not punch any openings in webs of trusses which are required to remain solid for code required draft stop.

2.05 SOURCE QUALITY CONTROL

B. Joists shall be manufactured in a plant listed in the joist ICC-ES Report and under the supervision of an approved third-party inspection agency.

C. Each of the joists shall be identified by a stamp indicating the joist series, ICC-ES report number, manufacturer's name, plant number, date of fabrication, and the independent inspection agency’s logo.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 06 1753

OPEN WEB WOOD JOISTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Open Web Wood Joists.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM A653 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

C. International Building Code (IBC).

1.03 QUALITY ASSURANCE

A. Joists shall be manufactured in a plant approved for fabrication by the building code and under the supervision of an approved third party inspection agency.

B. Manufacturer: Company specializing in manufacturing the products specified in this section with a minimum three years of documented experience.

C. Design under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the state in which the Project is located.

1.04 REGULATORY REQUIREMENTS

A. Conform to applicable code for loads, seismic zoning and other governing load criteria.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, handle and erect joists in accordance with manufacturer's recommendations.

B. Store joists in vertical position resting on bearing ends.

C. Cover joists to protect from weather; keep up off the ground.

1.06 FIELD MEASUREMENTS

A. Verify that shop drawing dimensions match actual field measurements.

PART 2 - PRODUCTS

2.01 OPEN WEB WOOD JOISTS

A. Joist Design: Fabricator is responsible for the structural engineering design for joists and any connections not shown on the Drawings.

1. Engage the services of a qualified professional Structural Engineer, experienced in design of wood joists and currently registered in the state of California, to provide the structural engineering design.

2. Design joists in conformance the following:

a. Design joists to withstand design loads and with deflection factor(s) in conformance with the requirements shown on the Structural Drawings.

b. Design Criteria listed in the General Notes on the Structural Drawings.

c. International Building Code.

3. Work of Other Trades: Review and coordinate work of other trades that interface with, connect to, pass through or are supported by the joists.

a. Make whatever provisions are necessary to the design, layout and fabrication of the joists to accommodate work by others while maintaining their specified structural capacity.

b. Design joists to allow for support, connection and installation of mechanical ducts, pipes or other large items supported by joists.

B. Manufacturers:

1. Alpine.

2. Menards.

3. Standard Structure.

4. Western Wood Fabrication.

5. Substitutions: Refer to Section 01 6000 for substitution procedures.

2.02 MATERIALS

A. Wood Members: Size, grade and species required by joist manufacturer to conform to structural design requirements for joist.

B. Steel Connectors: Type and size required by joist manufacturer to conform to structural design requirements for joist (Minimum requirement: ASTM A653 Structural Steel (SS) Grade 33 (230), G90 / Z275 galvanized.

C. Joist Bridging: Type, size and spacing recommended by joist manufacturer.

2.03 ACCESSORIES

A. Wood Blocking and Framing for Openings: In accordance with Section 06 1000, 19 percent maximum and 7 percent minimum moisture content.

B. Fasteners: As specified in General Notes on the Structural Drawings.

2.04 FABRICATION

A. Verify dimensions and site conditions prior to fabrication.

B. Fabricate joists to achieve layout / configuration shown on the Drawings and structural requirements specified on Structural Drawings.

C. Provide additional web members or special web member layout to accommodate field conditions and /or building design and work of other trades.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 06 1800

GLUE LAMINATED WOOD UNITS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Glue-Laminated Structural Units.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Institute of Timber Construction (AITC).

1. ANSI / AITC A190.1 – Standard for Wood Products - Structural Glued Laminated Timber.

C. American Wood Protection Association (AWPA):

1. AWPA Standard U1 – Use Category System: User Specification for Treated Wood.

1.03 QUALITY ASSURANCE

A. Manufacturer / Fabricator: Company specializing in manufacture of glue laminated structural units with three years of documented experience, and certified by AITC in accordance with ANSI / AITC A190.1.

1.04 REGULATORY REQUIREMENTS

A. Conform to applicable codes for loads, seismic zoning, and other load criteria.

1.05 DELIVERY, STORAGE AND PROTECTION

A. Protect members to AITC requirements for individually wrapped.

B. Leave individual wrapping in place until finishing occurs.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Structural Wood Member Adhesives: VOC levels of structural wood member adhesives used during construction shall not exceed 140 g/l VOC limit.

2.02 MATERIALS

A. Manufacturers:

1. Company specializing in manufacture of glue-laminated structural units and certified by the AITC.

B. Glue-Laminated Structural Units:

1. Lumber: As specified in the General Notes on the Structural Drawings, conforming to the appearance requirements noted under Fabrication in this section.

2. Laminating Adhesive: As specified in General Notes on the Structural Drawings.

C. Wood Sealer: Conform to ANSI / AITC A190.1 requirements.

D. Stain: Semi-transparent, oil-based stain.

2.03 WOOD TREATMENT

A. Wood Preservative: Clear, type; AWPA Treatment U1 using waterborne preservative designated in AWPA UC3B as suitable for above grade use to 0.25 percent retention.

1. Kiln dry after treatment to maximum moisture content of 19 percent.

2. Do not incise wood exposed to view in the finish construction.

B. Shop treat wood materials in accordance with manufacturer's instructions.

2.04 FABRICATION

A. Glue-Laminated Structural Members: Fabricate in accordance with ANSI / AITC A1190.1:

1. Concealed from View: ANSI / AITC Industrial Grade.

2. Exposed to View: Fabricate in accordance with ANSI / AITC A1190.1 Premium Architectural grade and the following special requirements:

a. Lumber Appearance Requirements:

1) Lumber edges, ends and faces exposed to view shall not have knots larger than 1/4-inch diameter and be free of splits, wane, damage or visual defects.

2) No sap wood exposed to view.

3) Exposed to view faces, edges and ends shall be free of voids requiring filler.

B. Verify dimensions and site conditions prior to fabrication.

C. Cut and fit members accurately to length to achieve tight joint fit.

D. Fabricate member with camber built in.

E. Do not splice or join members in locations other than those indicated without permission.

F. After end trimming, seal with penetrating sealer in accordance with AITC requirements.

G. Field Finishing of Exposed Members: Specified in Section 09 9000.

2.05 ACCESSORIES

A. Fasteners, Anchors and Anchor Bolts: As specified in the General Notes on the Structural Drawings for structural applications.

1. Fasteners in Exterior or Treated Wood Locations: Hot-dipped galvanized.

2.06 FINISHING

A. Glue-Laminated Structural Members Exposed to View: Factory sand surfaces smooth with progressively finer grit sandpaper to eliminate sanding marks, ending with180 grit.

1. Finishing: Factory apply one coat of semi-transparent oil-based stain.

a. Color: To be determined.

b. Field finishing is specified in Section 09 9000.

2. Provide individual protective wrapping for each structural unit exposed to view.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 06 2000

FINISH CARPENTRY

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Hardwood Trim.

B. MDF Wall Panels.

C. Solid Surface Window Sills.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American National Standards Institute (ANSI):

1. ANSI A208.2 - Medium Density Fiberboard for Interior Use.

2. ANSI Z124.3 – Plastic Lavatories.

C. American Wood Protection Association (AWPA):

1. AWPA UCFB – Fire Retardant.

D. Architectural Woodwork Institute (AWI):

1. AWS – Architectural Woodwork Standards.

1.03 QUALITY ASSURANCE

A. Perform work in accordance with AWI Architectural Woodwork Standards, Premium Grade.

B. Work in this section shall comply with the specified Grade found in the Architectural Woodwork Institute (AWI) Architectural Woodwork Standards (AWS).

C. Woodwork Manufacturer / Fabricator: Company specializing in fabricating the products specified in this section with a minimum five years of successful experience.

1.04 QUALIFICATIONS

A. Manufacturer / fabricator and installer engaged in the work of this section shall be able to demonstrate successful experience with work of comparable extent, complexity and quality to that shown and specified.

1.05 PRODUCT DELIVERY, STORAGE AND PROTECTION

A. Deliver finished products to jobsite in packaging suitable to protect finish surfaces from physical or moisture damage.

B. Protect products from moisture damage according to AWI Architectural Woodwork Standards.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Building exterior openings shall be enclosed / completed and interior moisture producing wet work (GWB, plaster, tile, painting, etc.) shall be completed and dry.

B. Building temperature and humidity shall be stabilized at the same temperature and humidity conditions as will occur after occupancy for at least one week before starting installation of the work of this section and shall be maintained during and after installation.

C. Unpackage materials and spread out to allow materials to acclimate and achieve moisture equilibrium inside the building for a minimum of 72 hours prior to start of installation and as required to prevent open joints due to shrinkage; or swelling and buckling of products after installation.

1. Moisture equilibrium shall be in accordance with the Equilibrium Moisture Content Values at Various Temperatures and Humidities Table included in AWI American Woodwork Standards.

1.07 FIELD MEASUREMENTS

A. Field verify conditions and dimensions prior to fabrication.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Wood Adhesives: VOC levels of wood adhesives used during construction shall not exceed 30 g/l VOC limit.

2. Other Adhesives: VOC levels of other adhesives used during construction shall not exceed 50 g/l VOC limit.

3. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

4. Stains: VOC levels of stains used during construction shall not exceed 250 g/l VOC limit.

2.02 WOOD LUMBER MATERIALS

A. Hardwood Lumber:

1. Oak Lumber: AWI Lumber Grade 1, White Oak species, rift cut, maximum moisture content of 11 percent or less; with grain of quality suitable for transparent finish.

2. Hardwood lumber shall have a consistent color and appearance, shall be obtained from the same source and shall maintain a consistent color and appearance after staining and finishing.

B. Softwood Lumber:

1. Fire Treated Lumber: No. 2 grade Douglas Fir wood; free of knots and splits; fire retardant pressure treated per AWPA Treatment UCFB, Exterior Type, chemical treatment pressure impregnated.

2.03 SHEET MATERIALS

A. Medium Density Fiberboard (MDF): Industrial Grade Medium Density Fiberboard (MDF), manufactured with a formaldehyde-free binder and which meets the requirements of ANSI A208.2.

2.04 SOLID SURFACE MATERIALS

A. Solid Surface: Cast, nonporous, filled polymer, not coated, laminated or of composite construction with through body colors meeting ANSI Z124.3, having minimum physical and performance properties noted in manufacturer's published product description.

1. Superficial damage to a depth of 0.010 inch shall be repairable by sanding and/or polishing.

2. Color: Match color of counter tops specified in Section 12 3661.

B. Accessories:

1. Joint Adhesive: Manufacturer's standard one or two-part adhesive kit to create inconspicuous, nonporous joints.

2. Sealant: Manufacturer's standard mildew-resistant, FDA-compliant, NSF 51-compliant (food zone — any type), UL-listed silicone sealant in colors matching components.

2.05 ADHESIVE

A. Adhesive: Type recommended by AWI and manufacturer to suit application.

2.06 FASTENERS

A. Concealed Fasteners: Finish nails, staples and screws, of size and type to suit application.

B. Exposed Fasteners:

1. At MDF Wall Panels: Chrome-plated oval head brass screws and matching raised edge finish washers, tamper resistant.

2. Not allowed except where specifically shown on Drawings.

2.07 ACCESSORIES

A. Lumber for Shimming, Blocking: Softwood lumber.

B. Wood Filler: Solvent base, tinted to match surface finish color.

C. Sealant:

1. Paintable Sealant: Siliconized acrylic emulsion latex as specified in Section 07 9000.

2.08 FABRICATION – GENERAL

A. Fabrications shall comply with AWI Premium Standards.

B. Coordinate and confirm field dimensions and conditions affecting work prior to start of fabrication.

C. Shop assemble work for delivery to site, permitting passage through building openings.

D. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

2.09 FABRICATION – HARDWOOD TRIM

A. Fabricate from White Oak hardwood lumber to AWI Premium Standards in conformance with AWI AWS Section 6.

B. Fabricate to match the size and profile shown on the Drawings from lumber in lengths that will yield the fewest butt joints possible.

C. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

D. Finishing: Shop finish as specified herein.

2.10 FABRICATION – MDF WALL PANEL

A. Fabricate to AWI Premium Standards in conformance with AWI Section 6.

B. Fabricate panels from 1/2-inch MDF panels as shown on Drawings. Provide size and configuration as shown on Drawings.

C. Panel Attachment: Exposed chrome plated fasteners, tamper proof.

D. Finishing:

1. Sand cut edges smooth prior to finishing.

2. Shop Prime: Shop prime with alkyd primer specified in Section 09 9000 ready for field finish.

a. Field finish specified in Section 09 9000.

2.11 FABRICATION – SOLID SURFACE WINDOW SILLS

A. Fabricate to AWI Premium Standards in conformance with AWI AWS Section 6.

B. Fabricate sills as a full length, single piece assembly for each window opening, two piece sills with butt joints not allowed.

C. Fabricate using solid surface material.

D. Ease edges.

2.12 SHOP FINISHING

A. Sand work smooth and set exposed fasteners.

B. Apply wood filler in exposed fastener indentations, filler shall match wood grain color so as to become nearly invisible after finishing.

C. Shop Finish: Shop finish fabricated items in accordance with AWI Section 5 Premium Grade as follows:

1. Hardwood Trim Fabrications: AWI Finish System – Catalyzed Polyurethane, including stain, vinyl sealer, 220 grit sanding, 2 separate finish coats.

a. Color: To be determined.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 07 2100

BUILDING INSULATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Thermal Batt Insulation.

B. Sound Insulation.

C. Rigid Foam Insulation Board.

D. Smart Vapor Retarder.

E. FSK Vapor Retarder.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM C578 – Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.

2. ASTM C665 – Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

3. ASTM D1621 – Standard Test Method for Compressive Properties Of Rigid Cellular Plastics.

4. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

5. ASTM E96 – Standard Test Methods for Water Vapor Transmission of Materials.

6. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials.

1.03 ENVIRONMENTAL REQUIREMENTS

A. Interior building insulation shall not be installed until the following conditions have been achieved in areas to be insulated:

1. Roofing is installed, air / water barrier system is installed, exterior openings are water-tight, building is dried in and building interior is thoroughly dried out.

2. Wood framing moisture content shall be at no more than 15%.

3. Relative humidity level of interior building air is maintained below 60% with adequate temporary heat, exhaust and air circulation to remove construction-produced water vapor and prevent areas of high relative humidity.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Other Adhesives: VOC levels of other adhesives used during construction shall not exceed 50 g/l VOC limit.

2. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2.02 BATT INSULATION MATERIALS

A. Thermal Batt Insulation (Building Thermal Envelope):

1. Preformed glass fiber batt; with formaldehyde-free binder, friction fit, unfaced, conform to ASTM C665.

2. Widths required for snug friction fit between framing members free of gaps or voids.

3. R-Value: As indicated on Drawings.

B. Sound Insulation (Glass Fiber): Preformed glass fiber batt; with formaldehyde-free binder, friction fit, unfaced, conform to ASTM C665.

1. Widths required for snug friction fit between framing members free of gaps or voids.

2. Thickness: 4-inches.

2.03 RIGID FOAM INSULATION BOARD

A. Rigid Foam Wall Insulation (Below Grade and Window Header Applications): Extruded Polystyrene Board Insulation, ASTM C578, Type IV; extruded cellular type polystyrene board with either natural skin or cut cell surfaces; with the following characteristics:

1. Board Edges: Square.

2. Compressive Resistance: 20 psi per ASTM D1621.

3. Water Absorption, maximum: 0.3 percent, volume.

4. Surface Burning Characteristics: Flame spread / smoke developed of 5/165 in accordance with ASTM E84.

5. Thermal Value Test Standard: Stabilized R-values @ 75°F mean temperature determined in accordance with ASTM C518.

6. Total R-Value: As indicated on Drawings.

B. Spray Foam Sealant (For Gap Filler): Specified in Section 07 9000.

C. Rigid Foam Roof Insulation at Preformed Metal Panel Roofing: Specified in Section 07 4000.

D. Rigid Foam Roof Insulation at Single-Ply Roofing: Specified in Section 07 5400.

2.04 SMART VAPOR RETARDER

A. Smart Vapor Retarder: High-performance reinforced intelligent vapor check film vapor retarder sheet with variable vapor permeance between 0.17 and 13 perms depending on relative humidity level.

1. Manufacturer / Product: Pro Clima International; *Intello Plus.*

2. Water Vapor Permeance:

a. ASTM E96: 0.44 perms.

b. ASTM E96 humidity variable: 13.12 perms – 0.13 perms.

3. Air Permeance: ASTM E2178: 0.00005 cfm / ft^2

4. Fire Hazard Classification: ASTM E84, Class A:

a. Maximum Flame Spread Index: 0

b. Maximum Smoke Developed Index: 35

B. Tape: Tape as recommended by the smart vapor retarder sheet manufacturer.

C. Staples: As recommended by the smart vapor retarder sheet manufacturer for installation to wood framing.

D. Sealant: Pro Clima International; *Contega HF* or other adhesive approved by smart vapor retarder sheet manufacturer.

E. Accessories: Any accessories required to provide an airtight installation.

2.05 ACCESSORIES

A. FSK Vapor Retarder (Exposed Conditions With No Cover): Foil-faced, laminated vapor retarder, Lamotite 2835M-FSK, 0.02 permeance (MVTR) per ASTM E96, BTU content per square foot when burned shall not exceed 200 BTU / sq. ft.; provide matching self-adhering tape, 4-inches wide, for seams.

B. Tape: Tape as recommended by the vapor retarder sheet manufacturer.

C. Staples: As recommended by the vapor retarder sheet manufacturer for installation to wood framing.

D. Adhesive: Low VOC adhesive recommended by manufacturer for application.

E. Insulation Baffle: Site built or manufactured ventilation baffles constructed from thin plywood, rigid foam, fiberboard or stiff cardboard to provide cross ventilation between insulated attic spaces and vented eaves. Baffle shall provide a 2-inch minimum deep ventilation cavity or as shown on Drawings and shall be 24-inches long.

F. Insulation Stops: Cardboard or plastic insulation stops to prevent batt insulation from blocking ventilation above insulation.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 07 2700

BUILDING AIR BARRIER REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Performance Requirements for Air Barrier System (ABS).

B. Administration and Coordination of Air Barrier System (ABS) Installation.

C. Requirements for Testing Building Enclosure Air Leakage Rate.

1.02 SCOPE OF WORK

A. Provide administrative and procedural oversight for accomplishing an airtight building enclosure that controls infiltration or exfiltration of air between the conditioned interior building atmosphere and the exterior atmosphere.

1. The completed building air barrier and air leakage rate shall conform to the 2019 Building Energy Efficiency Standards for Residential and Nonresidential Buildings California TITLE 24, PART 6.

2. The airtight components of the building enclosure and the joints, junctures and transitions between materials, products and assemblies forming the airtightness of the building enclosure are called the Air Barrier System (ABS).

3. Provide coordination between the trades, the proper scheduling and sequencing of the work, preconstruction meetings, inspections, tests and related actions, including reports performed by Contractor, by independent agencies and by governing authorities.

B. Ensure that the intent of constructing the building enclosure with a continuous air barrier system to control air leakage into, or out of the conditioned space is achieved. The air barrier system shall have the following characteristics:

1. Continuous, with joints sealed.

2. Structurally supported to withstand positive and negative air pressures applied to the building enclosure.

3. Connection shall be made between.

a. Foundation and floors.

b. Foundation and walls.

c. Walls and roof.

d. Walls and windows, doors and louvers.

e. Walls, floors and roof to utility, pipe and duct penetrations.

4. Air Barrier Penetrations: Penetrations of the air barrier and paths of air infiltration / exfiltration shall be sealed.

C. Third party inspection and testing services performed by others on the ABS do not relieve Contractor of responsibility for compliance with Contract Document requirements.

D. Requirements of this section relate to the coordination between subcontractors required to provide an airtight building enclosure, including:

1. Continuity of the air barrier materials and products with joints to provide systems or assemblies to provide a whole building air barrier system.

2. Specific quality-control requirements for individual construction activities are specified in the sections of the specifications. Ensure that each installer is adequately and satisfactorily performing the quality assurance documentation, tests and procedures required by each section.

3. Specified inspections, tests and related actions do not relieve the Contractor of responsibility for providing quality-control procedures that facilitate compliance with Contract Document requirements.

1.03 AIR BARRIER SYSTEM (ABS) PERFORMANCE REQUIREMENTS

A. Furnish and install the various different types of air barriers shown and specified to create an Air Barrier System (ABS) in locations shown on the Drawings, constructed to perform as a continuous barrier that will remain in place and durable for the life of the building and conform to the following:

1. Materials: Materials used for the air barrier system shall have an air permeance not to exceed 0.004 cfm / ft2 under a pressure differential of 0.3-inches water (1.57psf) when tested in accordance with ASTM E2178.

2. Assemblies of Materials and Components (Air Barrier System): Shall have an air permeance not to exceed 0.04 cfm / ft^2 under a pressure differential of 0.3-inches water (1.57 psf) when tested in accordance with ASTM E2357.

3. Whole Building: The air leakage of the entire building shall not exceed 0.4 cfm / ft^2 under a pressure differential of 0.3-inches water (1.57 psf) when tested according to ASTM E779.

B. Energy Code: Conform to the requirements of 2019 Building Energy Efficiency Standards for Residential and Nonresidential Buildings California TITLE 24, PART 6.

C. The installed building ABS shall conform to the following requirements:

1. ABS must be continuous, with joints made airtight and watertight.

2. Structural Integrity: ABS shall be capable of withstanding positive and negative combined design wind, fan and stack pressures on the envelope without damage or displacement, and shall transfer the load to the structure.

3. ABS shall not displace adjacent materials under full load.

4. ABS shall be joined in an airtight, watertight and flexible manner to the air barrier material of adjacent systems, allowing for the relative movement of systems due to thermal and moisture variations and creep.

5. ABS shall accommodate changes in substrate and perimeter sealing conditions.

6. Different air barrier products shall be permanently joined together where they meet in a manner approved by both manufacturers to provide an airtight juncture.

D. ABS shall accommodate movements of building materials by providing for airtight barrier across building expansion and control joints.

1.04 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM E779 – Standard Test Method for Determining Air Leakage Rate by Fan Pressurization.

2. ASTM E2178 – Standard Test Method for Air Permeance of Building Materials.

3. ASTM E2357 – Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.

1.05 DEFINITIONS

A. Air Barrier System (ABS): Materials, methods and expertise required to provide an air barrier in the completed building enclosure conforming to the Performance Requirements specified in this section.

B. Airtight: Air barrier materials, assemblies and whole building systems having an air permeance / leakage rate that conforms to the Performance Requirements specified in this section.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Installers shall be trained and knowledgeable in the proper application of the air barrier materials, assemblies and systems specified and be approved to apply the air barrier system by the assembly / system manufacturer where applicable.

B. Installer shall be capable of responsible, independent action and of determining the proper solution for each different air barrier detail / condition found on this project and not be reliant on outside direction in order to proceed with the work.

1.07 MOCK-UPS

A. Field-Constructed Mock-Ups: Prior to start of Air Barrier System installation, mock-up a representative sample of each different Air Barrier System condition required for this project; use materials and installation methods / sequence shown in the shop drawings and that will be employed in the actual construction of the building.

B. Apply air barrier on field-constructed mock-ups of assemblies specified in other sections.

C. Mock-up may be part of the permanent construction, select representative locations for mock-up of air barrier system at each different location / condition found on the project, including the following:

1. Connection between exterior wall and foundation.

2. Framed wall sheet-applied air and water barrier system.

3. Self-adhered sheet-applied air and vapor barrier system at roof deck.

4. Connection between framed wall and roof air barrier systems.

5. Connection between wall and windows, louvers, door frames.

6. Typical penetrations by structural members, conduits, electrical boxes, pipes and ducts.

D. The mock-up shall demonstrate the proper installation sequence and workmanship required for the Air Barrier System installation to provide an airtight envelope conforming to the Performance Requirements specified in this section.

E. Correct any non-conforming work; mock-ups conforming to requirements of Contract Documents shall become the standard of quality and construction for subsequent similar conditions.

F. Maintain mock-up in good condition and protected from damage throughout the entire project until the air infiltration testing has been successfully concluded on the completed building. Dismantle and remove mock-ups from the site.

1.08 PRE-INSTALLATION CONFERENCE

A. Pre-Installation Conference: 7 days prior to starting installation of the ABS, convene a pre-installation conference at the job site to review the project conditions and installation requirements.

B. Required Attendees: Contractor, Installer foreman, system(s) manufacturer representative(s), other trades with work that interfaces with or affects the air barrier system, Architect and Owner.

1. Attendance is required by installers of each of the various different air barriers specified and representatives of related trades including covering materials, substrate materials and adjacent materials.

2. The manufacturer's technical representative for each different Air Barrier System specified shall attend the pre-installation conference and shall provide the following:

a. Inspect and approve (along with the installer) the mock-up and the substrate(s) to which the ABS will be installed.

b. Review and explain each air barrier system product, including its limitations, the required surface preparation, the environmental requirements and the installation instructions / procedures and requirements for each different substrate and air barrier product.

C. Agenda shall include, at a minimum, construction of the mock-ups, sequence of construction, substrate condition / preparation, materials approved for use, compatibility of materials, joint between the various different types of air barriers specified, coordination with installation of adjacent and covering materials and details of construction.

D. Pre-Testing Conference: 7 days prior to the whole building air leakage test, convene a pre-testing conference at the job site to review the project conditions and installation requirements. Attendees shall include the Contractor, Testing Agency, Architect and Owner.

1.09 CONTRACTOR RESPONSIBILITY

A. Coordinate the construction of an ABS that is contiguous and connected across the six surfaces of the building envelope (top, sides and bottom) meeting the Performance Requirements as outlined in this specification.

1. Provide coordination of the trades and the sequence of construction to ensure continuity of the air barrier system joints, junctures and transitions between materials and assemblies of materials and products, from substructure to walls to roof.

2. Provide quality assurance procedures, testing and verification as specified herein.

3. Facilitate inspections, tests and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction or by the Owner.

B. Organize and conduct a pre-installation meetings between the trades installing the building air barrier system to discuss where each trade begins and ends, and the responsibility and sequence of installation of the airtight joints, junctures and transitions between materials, products and assemblies of products, specified in the different sections to be installed by the different trades.

C. Coordinate the construction of mock-ups prior to start of air barrier work showing the various different air barrier materials, systems and how they are connected to form an ABS for the whole building.

D. Cooperate with Owner's testing and inspection agency performing required inspections, tests and similar services, and provide reasonable auxiliary services as requested.

1. The Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities; testing shall occur during normal working hours during the work week, no weekend, holiday or night testing permitted.

2. Provide minimum 21 days advance notice to Owner's testing and inspection agency for date on which test is required.

3. Coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.

4. Notify the agency sufficiently in advance of operations to permit assignment of personnel.

5. Provide safe access to the Work including ladders, scaffolding or manlifts.

6. Furnish incidental labor and facilities necessary to facilitate inspections and tests.

7. Provide security and protection of samples and test equipment at the Project Site.

E. Whole Building Air Leakage Test: Schedule the air leakage test of the building after the building is 100% complete and just prior to Substantial Completion, coordinate times with the Owner's testing agency. Provide the following:

1. Schedule test to avoid wet or windy weather conditions which would adversely affect or conflict with the testing standards requirements.

2. Assign management personnel to be in attendance during the entire air leakage test and to assist testing agency with keys for access, knowledge of the as-built construction and operation of building systems.

3. No construction workers shall be allowed inside the building during testing.

4. Close and lock exterior doors.

5. Shut down HVAC, exhaust systems and gas / oil-fired heating equipment when directed by Owner's testing agency; restart systems and confirm proper operation after test is completed.

6. Temporarily seal exterior HVAC openings airtight using heavy plastic sheeting and tape; remove after test is completed.

7. Temporarily seal exterior exhaust openings airtight using heavy plastic sheeting and tape; remove after test is completed.

8. Temporarily seal exterior gas vents and chimneys airtight using heavy plastic sheeting and tape; remove after test is completed.

9. Block interior doors open.

10. Close and lock windows.

11. Fill plumbing traps with water.

12. Provide one 120 volt, 20 amp electrical circuit with non-GFI electrical outlets for each test fans; one circuit per fan with no other loads on circuit during testing.

13. Provide ladders for use by Owner's testing agency during testing.

1.10 TESTING AND INSPECTION AGENCY RESPONSIBILITY

A. Duties of the Testing and Inspection Agency: The Owner's testing agency engaged to perform inspections, sampling and testing of air barrier materials, components and assemblies specified in individual sections shall cooperate with the Contractor in performance of the agency's duties. The testing agency shall provide qualified personnel to perform required inspections and tests.

1. The agency shall notify the Architect and the Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. The agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.

3. The agency shall not perform any duties of the Contractor.

PART 2 - PRODUCTS

2.01 AIR BARRIER SYSTEM

A. Floor Air Barrier: Air barrier is the concrete floor slab on grade specified in Section 03 3001.

B. Framed Exterior Walls: Air barrier system is the sheet-applied air and water barrier system specified in Section 07 2719.

C. Roof Air Barrier: Air barrier system is the self-adhered, sheet-applied air / vapor barrier specified in Section 07 4000 and Section 07 5400.

D. Window and Door Air Barrier: Specified in Section 07 9000, Section 08 4113 and Section 08 5113.

E. Gaps and Voids: Spray foam sealant specified in Section 07 9000.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 07 2719

SHEET-APPLIED AIR AND WATER BARRIER SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Sheet-Applied Air and Water Barrier System.

B. Spray Foam.

1.02 PERFORMANCE REQUIREMENTS

A. Performance Requirements: Refer to Section 07 2700.

B. Definitions:

1. Air and Water Barrier System: A continuous secondary barrier installed behind the primary exterior cladding / siding that provides an air and liquid water barrier that reduces air leakage through the building exterior envelope to a defined level and prevents the passage of liquid water to the interior side of the barrier system at any point, including penetrations and interfaces between different materials and systems.

2. Airtight: Installed barrier system having an air permeability rating that conforms to the Performance Requirements specified in this section and in Section 07 2700 that are installed so that the total building exterior envelope does not exceed the air leakage rate specified in Section 07 2700.

3. Watertight: Installed barrier system able to withstand exposure to continuous wind-driven rainfall concurrent with the positive and negative wind pressures acting on the barrier resulting from the building size and geographic location without allowing leakage of any water to the interior side of the barrier system at any location, penetration or connection.

C. System Design Responsibility: The manufacturer is responsible for providing the technical design and details of the System as required to provide a completely integrated airtight and watertight secondary barrier system that accommodates the building materials, conditions and work by other trades. Where any detail on the Drawings differs with manufacturer's standard published details, consult with the Architect regarding possible special requirements which would require manufacturer's review and approval.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM D882 – Standard Test Method for Tensile Properties of Thin Plastic Sheeting.

2. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

3. ASTM E96 – Standard Test Method for Water Vapor Transmission of Materials.

4. ASTM E2178 – Standard Test Method for Air Permeance of Building Materials.

5. ASTM E2357 – Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.

C. American Association of Textile Chemists and Colorists (AATCC):

1. AATCC 127 – Water Resistance: Hydrostatic Pressure Test.

D. International Code Council (ICC).

1.04 QUALITY ASSURANCE

A. Installer: Installer shall have 5 years minimum experience with the installation of air and water barrier systems and have a thorough understanding of the theory and practical application of secondary barrier systems in exterior cladding / siding applications.

B. Installation: Installation shall be in accordance with System manufacturer's installation guidelines and recommendations.

C. Source Limitations: Sheet-applied air and water barrier system components shall be produced or approved by single manufacturer.

1.05 MOCK-UPS

A. Provide Mock-up as specified in Section 07 2700 and per the following requirements:

1. Mock-Up: Install a job mock-up at project site matching the cladding and Sheet-Applied Air and Water Barrier systems proposed for this project.

a. Mock-up may be part of the building exterior wall cladding, provided that the installation is acceptable, and shall contain all of the typical details.

b. Notify barrier manufacturer's field representative, Architect, and Owner when mock-up is complete and ready for review.

c. Replace any portion of the mock-up that is found to contain poor workmanship, or is not in conformance with the manufacturer's installation requirements, with the design intent or with the requirements of this section.

d. Maintenance: Maintain mock–up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.

1.06 PRE-INSTALLATION CONFERENCE

A. Conduct a Pre-Installation Conference as specified in Section 07 2700 and per the following requirements:

1. Two weeks prior to start of installation schedule a pre-installation conference at the job site to review the project conditions and installation requirements. Persons attending pre-installation conference shall include the General Contractor, Installer, Architect, Owner Representative(s), and System manufacturer's designated field service representative.

2. Review related project requirements and submittals, mock-up, status of substrate work and preparation, areas of potential conflict and interface, availability of Sheet-Applied Air and Water Barrier materials and components, installer's training requirements, equipment, facilities and scaffolding, and coordinate methods, procedures and sequencing requirements for full and proper installation, integration and protection.

1.07 DELIVERY, STORAGE AND PROTECTION

A. Deliver barrier system materials and components in manufacturer's original, unopened, undamaged containers with identification labels intact.

B. Store barrier system materials as recommended by barrier manufacturers.

1.08 SCHEDULING

A. Review requirements for sequencing of installation of sheet-applied air and water barrier systems with installation of windows, doors, louvers, lights, flashings and work of other trades to provide an airtight and watertight barrier assembly.

B. Schedule installation of sheet-applied air and water barrier system and exterior siding / cladding so that the exterior sheathing and sheet-applied air and water barrier system are not left exposed to the weather longer than recommended by the manufacturer(s).

1.09 GUARANTEE / WARRANTY

A. Contractor Guarantee: The Contractor shall guarantee the application of the sheet-applied air and water barrier system to be free from improper installation or workmanship and to remain leak-free for a period of five years and agrees to correct any leaking sheet-applied air and water barrier during the warranty period promptly after notification and at no cost to the Owner, including removal and replacement of any cladding materials necessary to gain access.

B. Manufacturer Warranty: Manufacturer agrees to promptly replace defective sheet-applied air and water barrier system materials for a period of ten (10) years at no cost to the Owner.

1. Approval by System manufacturer for warranty is required prior to System installation.

2. Warranty Areas: Areas shown on Drawings to receive sheet-applied air and water barrier system shall be included in the warranty.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Other Adhesives: VOC levels of other adhesives used during construction shall not exceed 50 g/l VOC limit.

2. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

3. Waterproof Membranes: VOC levels of waterproof membranes used during construction shall not exceed 250 g/l VOC limit.

2.02 SHEET-APPLIED AIR AND WATER BARRIER SYSTEM

A. Manufacturer: Air and water barrier system manufactured / provided by VaproShield LLC is the basis of design and standard of quality, performance and function for the self-adhered air and water barrier system. Products by the following manufacturers may be acceptable, subject to their ability to meet or exceed this standard and provide products conforming to the requirements of the Drawings and Specification.

1. Carlisle; *CCW-705 VP* used in conjunction with Carlisle *Barrithane VP*.

2. Henry; *VP 160* used in conjunction with *Henry Air-Bloc LF*.

3. Soprema; *Sopraseal Stick VP* used in conjunction with Soprema *Sopraseal Sealant.*

4. VaproShield; *WrapShield SA Self-Adhered Water-Resistive Vapor Permeable Air Barrier Sheet* used in conjunction with VaproShield *VaproLiqui-Flash* (specified).

5. WR Meadows; *Air-Shield SMP* used in conjunction with WR Meadows *Air-Shield Liquid Flashing*.

B. General: Provide components and accessories required for a complete and functional air and watertight sheet-applied air and water barrier system supplied by a single manufacturer, complete with manufacturer designed installation details for each condition found on the project.

C. Air and Water Barrier Sheet: Self-adhered air and water barrier sheet membrane consisting of multiple layers of UV stabilized spun-bonded polypropylene; *WrapShield SA Self-Adhered* Water-Resistive Vapor Permeable Air Barrier Sheet, manufactured VaproShield LLC with the following performance characteristics:

1. Exposure Prior To Cover: 180 days maximum.

2. Air Leakage: <0.01 cfm / ft. sq. when tested in accordance with ASTM E2357 and < 0.0000263 cfm / sq. ft. @ 75 Pa when tested in accordance with ASTM E2178.

3. Water Vapor Permeance tested to ASTM E96 Method B: 50 perms.

4. Water Resistance tested to AATCC 127, 550 mm hydrostatic head for 5 hours: No leakage.

5. Tensile Strength tested to ASTM D882: 44.8 lbf / inch, machine direction; 25 lbf / inch, cross-machine direction.

6. Application Temperature: Ambient temperature must be above 20 degrees F.

7. Surface Burning Characteristics tested to ASTM E84: Class A, Flame-spread index of less than 10, Smoke-development index of less than 15.

8. Physical Dimensions: 0.026 inches thick and 59 inches wide and 8.26 oz. per sq. yd.

D. Accessories:

1. Liquid-Applied Opening Flashing for Windows, Doors. Louvers and Other Penetrations: *VaproLiqui-Flash* liquid-applied waterproof flashing material applied over *VaproFlashing SA.*

2. Self-Adhered Transition and Flashing Membrane: Membrane shall be *VaproFlashing SA*, a zero VOC self-adhered water-resistive vapor permeable membrane having the following properties:

   a. *VaproFlashing SA*: 11-3/4 inches or 19 inches wide x 164 feet long.

   b. Air Leakage: < 0.0000263 cfm / sq. ft. @ 75 Pa when tested in accordance with ASTM E2178.

   c. Water Vapor Permeance tested to ASTM E96 Method B: 50 perms.

   d. Water Resistance tested to AATCC 127, 550 mm hydrostatic head for 5 hours: No leakage.

3. Adhesive Primers: As recommended by air and water barrier system manufacturer for substrate and temperature conditions.

4. Penetration and Termination Sealant: As recommended by air and water barrier system manufacturer for substrate and temperature conditions.

E. Furring: Treated wood as specified in Section 06 1000.

F. Sheet Metal Flashing: Specified in Section 07 6200.

G. Spray Foam: Polyurethane foam sealant which expands to take the shape of cracks and voids and permanently seals to substrate surfaces.

1. Code Approval: ICC Evaluation Service, Inc. ES Report ESR-2717.

2. Fire Performance:

   a. Flame Spread Index Per ASTM E84: 20 or less

   b. Smoke Developed Index Per ASTM E84: 400 or less

3. Manufacturer / Product: Fomo Products; *Handi-Foam E84 Class 1(A).*

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 07 4000

PREFORMED METAL PANEL SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Metal Roofing Panel System and Related Flashings / Trim.

1. Structural Engineering for Attachment.

2. Temporary Roof.

3. Rigid Foam Insulation.

4. Underlayment.

B. Ribbed Metal Roofing System and Related Flashings / Trim.

1.02 PERFORMANCE REQUIREMENTS

A. Environmental Requirements:

1. Provide for expansion and contraction of system components due to changes in ambient temperature and solar heat gain. Accommodate movement due to temperature change without buckling, undue stress on structural elements, reduction of performance, or other damaging effects.

a. Anticipated ambient temperature range: 0 degrees to plus 180 degrees F.

B. Structural Design for Metal Roof Panel System: Provide structural engineering design for the preformed metal panel systems and their connection to the building structure.

1. Engage the services of a qualified Professional Engineer, experienced in design of metal panel systems and currently registered in the State of California, to provide the structural engineering design.

2. Design in conformance with the following:

a. Design Criteria listed for Snow and Wind on the Structural Drawing General Notes.

b. International Building Code, including applicable referenced AISI specifications and standards.

c. IBC Chapter 16 – Section 1609 and tested in accordance with UL 580 and ASTM E1592.

3. Roofing System: Include design for attachment of roofing panels to resist drag forces from snow loads.

a. Where metal roof panels are installed over exposed to view tongue and groove wood decking, select fastener sizes so that the fastener does not penetrate all the way through the exposed face of the decking. Fasteners shall not be seen where the tongue and groove wood decking is exposed to view on the bottom side.

C. Work of Other Trades: Review and coordinate work of other trades that interface with or pass through the metal panel systems.

1. Make whatever provisions are necessary to the design, layout and fabrication of the metal panel systems to accommodate work by others.

D. Testing and Certification: Systems provided shall have been tested under the supervision of an accredited independent laboratory; the test reports shall be provided upon request.

1. Metal Roof Panel System Requirements:

a. Wind Uplift:

1) ASTM E1592.

2) UL 580 Class 90 rated.

b. Air Infiltration: Meet or exceed the following when tested in accordance with ASTM E1680:

1) Positive Pressure: 0.006 cfm per lineal foot of panel seam at 1.57 psf positive pressure.

2) Negative Pressure: 0.02 cfm per lineal foot of panel seam at 1.57 psf negative pressure.

c. Water Penetration: No leakage at 6.24 psf (minimum) pressure when tested in accordance with ASTM E1646.

d. Fire Classification: Class B in conformance with IBC Section 1505.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Iron and Steel Institute (AISI).

C. American Society for Testing and Materials (ASTM):

1. ASTM A792 – Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.

2. ASTM C209 – Standard Test Methods for Cellulosic Fiber Insulating Board.

3. ASTM C1289 – Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.

4. ASTM D1621 – Standard Test Method for Compressive Properties of Rigid Cellular Plastics.

5. ASTM E1592 – Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.

6. ASTM E1646 – Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference.

7. ASTM E1680 – Standard Test Method for Rate of Air Leakage through Exterior Metal Roof Panel Systems.

D. International Building Code (IBC).

E. National Fire Protection Association (NFPA):

1. NFPA 259 – Standard Test Method for Potential Heat of Building Materials.

F. Underwriters Laboratories, Inc. (UL):

1. Roofing Materials and Systems Directory

2. UL 580 – Tests for Uplift Resistance of Roof Assemblies.

1.04 QUALITY ASSURANCE

A. Metal panels shall be factory roll formed, site formed panels are not acceptable.

B. Metal Panel Systems - Approvals and Testing:

1. Tested in accordance with UL 580 and ASTM E1592

C. Professional Engineer Qualifications: Professional Structural Engineer experienced in design of this work and currently licensed in State of California.

D. Manufacturer Qualifications: A company with a minimum of 10 years of successful experience in the design, fabrication, and installation of metal panel systems comparable in size and nature to those required for this project.

E. Installer Qualifications: installer shall have a minimum of 5 years of successful experience under the current business name in the installation of metal panel systems comparable in size and nature to those required for this project (upon request provide listing of all projects completed within the last 3 years along with names and phone numbers of owners and general contractors).

1. Installer shall be approved by the Metal Panel Manufacturer for installation of their warranted roofing systems.

F. Field Measurements: Measure in-place construction on which metal roofing system will be installed if possible, before fabrication of panels. If not feasible, fabricate material to allow in-field trimming of panels to assure proper fit.

1. Coordinate field measurements and shop drawings with shop fabrication to minimize field adjustments, splicing, and mechanical joints.

1.05 DESIGN RESPONSIBILITY (METAL ROOFING SYSTEM)

A. Metal Roofing System Design Responsibility: The metal roofing manufacturer is responsible for providing the technical design of a total metal roofing system, with associated materials, flashings, connections, details, etc. required to achieve a metal roofing installation that remains leak free for at least the duration of the warranty. Technical design by manufacturer shall be based upon and accommodate the configuration, layout and design elements of the metal roofing shown on the Contract Drawings.

1. The shop drawings approved by the metal roofing manufacturer are the Roofing System technical design drawings for use in construction. Roofing contractors bidding this roofing work shall base their bid on the requirements of the manufacturer's specific roofing system and details as it will appear on the shop drawings.

a. Coordinate the fabrication and installation of sheet metal flashings and components which form a part of the roofing system with Section 07 6200 so that the completed roofing and flashing system is leak-free and conforms to the design requirements of the metal roofing manufacturer.

2. The Contractor's professional engineer is responsible for designing the connection of the metal panels to the building structure in conformance with the performance requirements specified in this section.

3. Metal Roofing Manufacturer shall provide and / or approve materials used in the application of the metal roofing system.

4. Metal Roofing Manufacturer shall approve installation methods used in the application of the metal roofing system.

5. Metal Roofing Manufacturer shall provide clear instruction to the installer on:

a. Environmental requirements for storage and installation.

b. Approved installation requirements of the metal roofing materials.

c. Installation sequence.

d. Proper assembly of the materials into a metal roofing system designed to provide a watertight roofing assembly.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle products as recommended by manufacturer to prevent damage or discoloration.

1. Protect against damage and discoloration.

2. Handle panels with non-marring slings.

3. Do not bend panels.

4. Store panels above ground, with one end elevated for drainage.

5. Protect panels against standing water and condensation between adjacent surfaces.

6. If panels become wet, immediately separate sheets, wipe dry with clean cloth, and keep sheets separate for air-drying.

7. Do not allow panels with strippable film to be exposed to direct sunlight. Remove film prior to installation.

1.07 WARRANTY

A. Contractor's Warranty: Warrant metal roofing panel system installations, including panels, flashings, sealants, fasteners and accessories against defective materials and / or workmanship, to remain watertight and weatherproof with normal usage for two (2) years following Project Substantial Completion date.

B. Manufacturer's Watertight Warranty – Metal Roofing System: Manufacturer shall warrant metal roofing system installation against failure and leaks for a period of twenty (20) years.

C. 25 Year Pre-Finished Sheet Steel Warranty: Warrant coated finish against cracking, peeling, blistering, chalk in excess of 8 units, and fade in excess of 5 NBS points, for a period of 25 years, without reducing or otherwise limiting any other rights to correction which the owner may have under the contract documents. Manufacturer shall also warrant that metal will not fail structurally, perforate, rupture or leak due to corrosion for a period of 25 years.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2.02 METAL ROOFING PANEL SYSTEM

A. Manufacturer: Products by AEP Span are the basis of design and the standard of quality required for this project. Products by the following manufacturers may be acceptable, subject to their ability to meet or exceed this standard and provide products conforming with the requirements of the Drawings and Specification:

1. AEP Span (basis of design, specified).

2. The Bryer Company.

3. Fabral.

4. MBCI.

5. McElroy Metal.

6. Metal Sales.

7. Taylor Metal Products.

8. Substitutions: Comply with Section 01 6000 requirements, proposed substitutions must match specified product, selected colors and be approved by Architect.

B. Factory Pre-Finished Sheet Metal: Steel sheet with minimum yield of 50,000 psi conforming to ASTM A792 coated with AZ50 zinc-aluminum alloy (Zincalume or Galvalume).

1. Factory Finish

a. Finish Coating (Weather Side): Premium fluoropolymer coating with minimum of 70% *Kynar 500* or *Hylar 5000* base resin, factory-applied, oven baked and applied under controlled conditions.

b. Underside / Backside Finish: Manufacturer's standard corrosion-inhibiting wash coat.

2. Color(s): Refer to Drawings.

3. Protective film: Provide strippable plastic film, applied to finish of coil stock before forming, or plastic interleaf, applied to panel after forming.

C. Standing Seam Metal Roofing System: AEP Span, *SpanSeam,* factory-formed metal panels with concealed clip fastening system for attaching metal roofing system to primary building structure.

1. Application: Concealed fastener standing rib roofing panel.

2. Panel Material: Fabricate panels from factory pre-finished steel sheet.

3. Panel Width: 16-inch nominal width.

4. Panel Gauge: 24 gauge.

5. Seam Type: 180 degrees and 2-inches high, mechanically field seamed.

6. Panel Length: Field verify.

D. Slip Sheet: Rosin sized sheathing paper as recommended by roofing system manufacturer.

E. Underlayment: 40 mil thick self-adhering, reinforced high temperature sheet

1. Protecto Wrap; *Jiffy Seal Ice and Water Guard HT*.

F. Temporary Roof (Air Barrier): 32 mil thick self-adhered barrier.

1. Provide all components and accessories required for a complete and functional water barrier system supplied by a single manufacturer, complete with manufacturer designed installation details for each condition found on the project.

2. Any damage shall be repaired prior to installation of roofing and the barrier system is not left exposed longer than recommended by the manufacturer.

3. Manufacturer / Product:

a. Sika Sarnafil; *Sarnavap Self-Adhered.*

b. Soprema; *Sopravap'r.*

4. Primer: As recommended by the manufacturer for specified substrate.

G. Fastener Clips: Manufacturer's standard ASTM A792 Zincalume or Galvalume coated sheet steel clip, UL-90 rated, conform to engineered design requirements.

H. Fasteners:

1. Screw Fasteners: Provide manufacturer's standard corrosion-resistant coated screw fasteners of size and type required for intended application.

a. Use of cadmium-plated fasteners is not allowed.

b. Exposed Fasteners: Coated to match color of roofing; non-rusting.

c. Rivets: Non-rusting stainless steel.

1) Not allowed where watertight seal is required.

2) Exposed-to-view rivets are not allowed.

I. Sheet Metal Flashing, Closures and Trim: Provide as shown on the Drawings and as required by metal roofing system manufacturer to achieve watertight installation; comply with sheet metal fabrication standards specified in Section 07 6200.

1. Fabricate from 24 gauge factory finished steel sheet with same coating, finish and color as adjacent roofing panel.

J. Sealant: Silicone sealant in color matching the roofing panel color.

1. DowSil; *795 Silicone Building Sealant*.

2. GE Momentive; *Silpruf SCS2000*.

K. Fabrication:

1. Coordinate and confirm field dimensions and conditions prior to fabrication.

2. Factory form metal panels in continuous one-piece lengths; site formed panels are not allowed.

a. Fabricate panels to profiles and configuration required by metal panel manufacturer and as shown on the Drawings for watertight assembly.

3. Shop fabricate flashing and trim in prefinished sheet metal matching roof panels in longest lengths practical to profiles and configuration required by manufacturer and as shown on the Drawings.

a. Conform to fabrication requirements specified in Section 07 6200.

b. Gauge: 24 gauge minimum; increase thickness where recommended by manufacturer or where field conditions require additional stiffness to avoid waviness or visible deflection.

2.03 RIBBED METAL ROOFING PANEL SYSTEM

A. Manufacturer: Products by AEP Span are the basis of design and the standard of quality required for this project. Products by the following manufacturers may be acceptable, subject to their ability to meet or exceed this standard and provide products conforming with the requirements of the Drawings and Specification:

1. AEP Span (basis of design, specified).

2. The Bryer Company.

3. Fabral.

4. MBCI.

5. McElroy Metal.

6. Metal Sales.

7. Taylor Metal Products.

8. Substitutions: Comply with Section 01 6000 requirements, proposed substitutions must match specified product, selected colors and be approved by Architect.

B. Factory Pre-Finished Sheet Metal: Steel sheet with minimum yield of 50,000 psi conforming to ASTM A792 coated with AZ50 zinc-aluminum alloy (Zincalume or Galvalume).

1. Factory Finish

a. Finish Coating (Weather Side): Premium fluoropolymer coating with minimum of 70% *Kynar 500* or *Hylar 5000* base resin, factory-applied, oven baked and applied under controlled conditions.

b. Underside / Backside Finish: Manufacturer's standard corrosion-inhibiting wash coat.

2. Color(s): Refer to Drawings.

3. Protective film: Provide strippable plastic film, applied to finish of coil stock before forming, or plastic interleaf, applied to panel after forming.

C. Ribbed Metal Roofing Panel: AEP Span, *HR-36* factory-formed ribbed roofing system with exposed fastener for attaching metal roofing system to primary building structure.

1. Application: Exposed fastener ribbed roofing panel.

2. Panel Material: Fabricate panels from factory finished sheet metal.

3. Panel Width: 36-inch nominal width.

4. Panel Gauge: 24 gauge or as noted on the Structural Drawings.

5. Seam type: Overlapping ribs.

6. Panel Length: Field verify.

D. Fasteners: Provide color coated galvanized fasteners with rubber gasketed self-sealing head, match color of roofing panel, size and type as recommended by panel manufacturer for secure attachment of panels to roof structure.

1. Use of cadmium-plated fasteners is not allowed.

E. Closure Strip: Closed-cell neoprene rubber, die-cut to fit panel rib profile with 5 to 10 percent compression.

F. Sheet Metal Flashing, Closures, and Trim: Provide as shown on the Drawings and as required to achieve watertight installation; comply with sheet metal fabrication standards specified in Section 07 6200.

1. Fabricate from 24 gauge factory finished steel sheet with same coating, finish and color as adjacent roofing panel.

G. Sealant: Silicone sealant in color matching the roofing panel color.

1. DowSil; *795 Silicone Building Sealant*.

2. GE Momentive; *Silpruf SCS2000*.

H. Fabrication:

1. Coordinate and confirm field dimensions and conditions prior to fabrication.

2. Factory form metal panels in continuous one-piece lengths; site formed panels are not allowed.

a. Fabricate panels to profiles and configuration required by metal panel manufacturer and as shown on the Drawings for watertight assembly.

3. Shop fabricate flashing and trim in prefinished sheet metal matching roof panels in longest lengths practical to profiles and configuration required by manufacturer and as shown on the Drawings.

a. Conform to fabrication requirements specified in Section 07 6200.

b. Gauge: 24 gauge minimum; increase thickness where recommended by manufacturer or where field conditions require additional stiffness to avoid waviness or visible deflection.

2.04 RIGID FOAM INSULATION

A. Rigid Foam Insulation (Under Metal Roofing): Rigid board insulation consisting of a glass-fiber-reinforced polyisocyanurate foam core laminated between aluminum foil facers. Conform to ASTM C1289 Type II, Class 1 and the following:

1. Board Edges: Square.

2. Facers: Dimensionally stable coated glass facers and approved for direct application of specified underlayment.

3. Code Compliance: Meets the requirements of IBC Chapter 26 Plastics, Section 2603.5.3 "Potential Heat" per NFPA 259 and Section 2603.8 "Special Approval" for use without a thermal barrier covering.

4. Compressive Strength Per ASTM D1621: 20 psi minimum.

5. Water Absorption Per ASTM C209: <1%.

6. Total R-Value: As indicated on Drawings; long term thermal resistance (LTTR) per ASTM C1289 shall be 5.7 per inch of thickness.

7. Number of Layers:

   a. R-38 Insulation: 2 layers.

8. Panels Size: Largest size practical for installation to yield fewest joints.

9. Manufacturer / Product: RMax *Multi-MaX FA-3* or similar with equal performance, thickness, materials and construction.

   a. Total R-Value: R-38.

      1) R-38 Insulation Thickness: 1 base layer of 3.50-inch thick insulation and 1 layer of 3.10-inch thick insulation.

B. Spray Foam: Refer to Section 07 9000.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 07 4649

FIBER CEMENT SIDING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Fiber Cement Lap Siding.

B. Fiber Cement Soffits.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM A792 – Standard Specification for Steel Sheet, 55 % Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.

1.03 PERFORMANCE REQUIREMENTS / DESIGN CRITERIA

A. Siding and Soffit Accommodation: Design framing supports configuration, size, spacing, and make adjustments as needed to accommodate support for each siding and soffit type, specified in this section and shown on Drawings.

1.04 PRE-INSTALLATION CONFERENCE

A. Prior to start of installation, Contractor shall conduct a pre-installation conference at the job site to review the project conditions and installation requirements. Persons attending pre-installation conference shall include the General Contractor, Installer, Architect and Owner Representative(s).

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of experience.

B. Installer Qualifications: Experienced in performing work of this section with a minimum of five years documented experience in the installation of work of similar size, scope, complexity. Trained and authorized by substructure system manufacturer as qualified to install work of this section.

1.06 DELIVERY, STORAGE AND PROTECTION

A. Delivery: Deliver materials in manufacturer’s original, unopened, undamaged containers with identification labels intact

B. Store and handle to keep clean, dry, and protected from damage due to weather and construction activities.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2.02 FIBER CEMENT LAP SIDING

A. Fiber Cement Lap Siding: Fiber cement lap siding, noncombustible, pre-finish.

1. Manufacturer / Product: Products by Allura are the basis of design and the standard of quality, function and performance required for this Project

a. Allura; *RusticSeries* finished by *Woodtone.*

b. Other Manufacturers: Other manufacturers may be acceptable, subject to their ability to meet or exceed this standard and provide products conforming to the requirements of the Drawings and Specification. It is the responsibility of the bidders / manufacturers to confirm that they can provide products that meet the requirements of this Project prior to bid.

1) Substitutions: Refer to Section 01 6000 for substitution procedures and requirements.

2. Style: Rustic Wood.

3. Length: 12 feet.

4. Width: 5-1/4-inch.

5. Exposure to Weather: 4-inch.

6. Starter Strip: Fiber cement starter strip.

7. Custom Sheet Metal Trims: As shown on Drawings and specified herein.

8. Fasteners: Concealed from view screws specified herein.

2.03 FIBER CEMENT SOFFIT PANELS

A. Fiber Cement Soffit: Fiber cement panels, noncombustible, 5/16-inch thick, factory prime painted ready to field finish.

1. Manufacturer / Product: Products by James Hardie are the basis of design and the standard of quality, function and performance required for this Project

    a. James Hardie; *Vertical Siding.*

    b. Other Manufacturers: Other manufacturers may be acceptable, subject to their ability to meet or exceed this standard and provide products conforming to the requirements of the Drawings and Specification. It is the responsibility of the bidders / manufacturers to confirm that they can provide products that meet the requirements of this Project prior to bid.

        1) Substitutions: Refer to Section 01 6000 for substitution procedures and requirements.

2. Style: Vented Smooth.

3. Width: As required to fit condition with minimum number of joints.

4. Length: As required to fit condition with minimum number of joints.

5. Fasteners: Soffit screws specified herein.

2.04 FIBER CEMENT SIDING ACCESSORIES

A. Lap Siding Fasteners (Concealed Fasteners): Hot dipped galvanized screw fasteners of sufficient length to provide minimum 1-inch embedment into wood wall framing or solid wood backing; size, spacing, and fastener type as recommended by siding manufacturer

B. Joint Flashing for Lap Siding: VaproShield LLC *WrapShield SA Self-Adhered*, or approved.

C. Sealant: *Pro Series Quad Advanced Formula Sealant* manufactured by OSI Sealants or approved equivalent.

2.05 FIBER CEMENT SOFFIT ACCESSORIES

A. Soffit Joint Trim: PVC H-mold matching fiber cement soffit thickness, *Soffit H-Mold* manufactured by Tamlyn or approved equal, white color suitable for field painting by Section 09 9000.

B. Soffit Fasteners:

1. Soffit Attachment: Type 305 stainless steel screws with flat head of sufficient length to provide minimum 1-inch embedment into soffit framing or solid wood backing.

a. Manufacturer / Product: GRK Fasteners *Pheinox R4 Stainless Steel Screw*, website: www.grkfasteners.com

C. Sealant: *Pro Series Quad Advanced Formula Sealant* manufactured by OSI Sealants or approved equivalent.

2.06 RAINSCREEN CAVITY FURRING

A. Rainscreen Furring: Refer to Section 06 1000.

2.07 AIR AND WATER BARRIER SYSTEMS

A. Sheet-Applied Air and Water Barrier System: Specified in Section 07 2719.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 07 5400

(TPO) SINGLE-PLY ROOFING SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Mechanically Fastened TPO Roofing System (Single-Ply Roofing System).

B. Rigid Foam Roof Insulation.

C. Roof Air / Vapor Barrier.

1.02 PERFORMANCE REQUIREMENTS

A. Roofing manufacturer is responsible for providing a total roofing system (from structural deck to top of roofing) that conforms to these performance requirements.

B. Watertight Design / Details: Provide roofing system that provides a watertight roofing installation for the duration of the warranty free of leaks or failures.

C. Roofing System Wind Load Design: The installed roofing system and its attachment to the building structure shall conform to the wind load design requirements of the International Building Code (IBC).

1. Positive and Negative Design Wind Loads: As specified in the General Notes on the Structural Drawings.

D. Fire Classification: UL Class B.

E. Energy Code Requirement: System must meet the performance requirements of the 2019 Building Energy Efficiency Standards for Residential and Nonresidential Buildings California TITLE 24, PART 6 for Solar Reflectance (SR) and Thermal Emittance (TE). Roofing products must be tested and labeled by the Cool Roof Rating Council (CRRC).

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM C1289 – Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.

2. ASTM D1621 – Standard Test Method for Compressive Properties of Rigid Cellular Plastics.

3. ASTM D6878 – Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing.

C. International Building Code (IBC).

1.04 QUALITY ASSURANCE

A. The installed TPO membrane roofing system, including insulation, must achieve each of the following ratings:

1. Fire Classification: UL Class B.

2. Design Wind Speed: 110 MPH wind speed in conformance with the requirements of International Building Code Chapter 16 – Section 1609.

3. Underwriters Laboratories UL 90 rated.

B. Roofing System Manufacturer: A Company, with 15 years of experience manufacturing reinforced single ply roofing systems with proven track record manufacturing single-ply roofing membranes. The manufacturer shall certify the scrim reinforced TPO membrane meets the physical properties specified.

C. Applicator: A company approved / authorized by Roofing System Manufacturer, and specializing in single-ply roofing systems. The Applicator shall have completed at least 5 installations, similar in scope to this project, of mechanically attached, scrim reinforced, heat welded TPO single ply installations, in the last year. Applicator must strictly comply with the manufacturer's current specifications and details.

D. Inspection: Upon completion of the Roofing System installation, a Technical Representative of the Roofing System Manufacturer shall inspect the installation to confirm that it has been installed according to the Manufacturer's specification and installation details required for this project.

1.05 SYSTEM DESIGN RESPONSIBILITY

A. Roofing System Design Responsibility: The single-ply roofing manufacturer is responsible for providing the technical design of the total roofing system, with associated materials, flashings, connections, details, etc. required to achieve a roofing installation that remains leak free for at least the duration of the warranty. Technical design by manufacturer shall be based upon and accommodate the materials, configuration, layout and design elements and requirements of the roofing system shown on the Contract Drawings and specified herein.

1. The shop drawings approved by the roofing membrane manufacturer are the Roofing System technical design drawings for use in construction. Roofing contractors bidding this roofing work shall base their bid on the requirements of the manufacturer's specific roofing system and details as it will appear on the shop drawings.

a. Coordinate the fabrication and installation of sheet metal flashings and components which form a part of the roofing system with Section 07 6200 so that the completed roofing and flashing system is leak-free and conforms to the design requirements of the roofing membrane manufacturer.

2. Provide and / or approve materials used in the application of the roofing membrane system.

3. Approve installation methods used in the application of the roofing membrane system.

4. Provide clear instruction to the installer on:

   a. Environmental requirements for storage and installation.

   b. Approved installation requirements of the roofing materials.

   c. Installation sequence.

   d. Proper assembly of the materials into a roofing membrane system designed to provide a water-tight roofing assembly.

5. Tapered Insulation Design: Provide a complete design of the tapered insulation over the entire roof area in conformance with the following requirements:

   a. The installed roofing surface shall measure not less than ¼-inch per foot of slope from a level plane.

   b. Design shall take into account any slope built into the roofing deck / structure.

   c. Design tapered insulation so that the completed roofing installation does not trap or pond water.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the job site in manufacturer's original, unopened containers or wrappings with the manufacturer's name, brand name and installation instructions intact and legible. Deliver in sufficient quantity to permit work to continue without interruption.

B. Comply with the manufacturer's written instruction for proper material storage.

1. Store materials, except membrane, between 60 degrees F and 80 degrees F in dry areas protected from water and direct sunlight. If exposed to lower temperature, restore to 60 degrees F minimum temperature before using.

2. Store materials containing solvents in dry, well ventilated spaces with proper fire and safety precautions. Keep lids on tight. Use before expiration of their shelf life.

C. Insulation must be on pallets, off the ground and tightly covered with waterproof materials.

D. Any materials which are found to be damaged shall be removed and replaced at the applicator's expense.

1.07 WORK SEQUENCE

A. Schedule and execute work to coincide with dry weather, and to prevent leaks and excessive traffic on completed roof sections.

B. Care should be exercised to provide protection for the interior of the building and to ensure water does not flow beneath any completed sections of the membrane system.

1.08 PRE-INSTALLATION CONFERENCE

A. Prior to start of roofing installation, Contractor shall schedule a pre-installation conference at the job site to review the project conditions and installation requirements. Person attending pre-installation conference shall include the General Contractor, Roofing Installer, Roofing System Manufacturer's Representative, Architect, and Owner Representative(s).

1.09 JOB SITE PROTECTION

A. Do not overload any portion of the building, either by use of or placement of equipment, storage of debris, or storage of materials.

B. Protect against fire and flame spread. Maintain proper and adequate fire extinguishers.

C. Take precautions to prevent drains from clogging during the roofing application. Remove debris at the completion of each day's work and clean drains. At completion, test drains to ensure the system is free running and drains are water-tight. Remove strainers and plug drains in areas where work is in progress. Install flags or other telltales on plugs. Remove plugs each night and screen drain.

D. Store moisture susceptible materials above ground and protect with waterproof coverings.

E. Remove traces of piled bulk materials and return the job site to its original condition upon completion of the work.

1.10 SAFETY

A. The Contractor shall be responsible for means and methods as they relate to safety and shall comply with applicable local, state and federal requirements that are safety related.

1.11 WORKMANSHIP

A. Applicators installing roofing system and related work shall be factory trained and approved by the manufacturer they are representing.

B. Work shall be of highest quality and in strict accordance with the manufacturer's published specifications and to the building owner's satisfaction.

C. There shall be a supervisor on the job site at times while work is in progress.

1.12 SPECIAL REQUIREMENT

A. Section 07 6200 Sheet Metal Work: Sheet metal fabricator and installer shall either be employees of the Section 07 5400 installer, or shall be an established architectural sheet metal company that is subcontracted directly to the Section 07 5400 installer.

1. Fabrication and installation of sheet metal installed in single ply roofing system shall conform to the roofing manufacturer’s requirements for the roofing system provided.

1.13 ROOFING SYSTEM WARRANTY – LEAK FREE, MATERIALS AND LABOR, NO DOLLAR LIMIT

A. Roofing System Manufacturer Warranty: Upon successful completion of the project, and after post installation procedures have been completed, furnish the Owner with the roofing manufacturer’s twenty (20) year, no dollar limit (NDL) roofing system warranty. The warranty shall be a term type, without deductibles or limitations on coverage amount, and shall be issued at no additional cost to the Owner.

1. The warranty shall be from the Manufacturer of the membrane.

2. The warranty shall include the entire Roofing System including coverboard, insulation, plates, fasteners, adhesives, metal flashing attachment, sealants, etc.

3. The warranty shall cover both the labor and material cost of roofing replacement in the event of failure with no dollar limit.

4. The warranty shall contain no exclusion or limitation for improper installation, or damage from environmental contaminants; or damage from water that ponds or does not drain freely.

5. Pro-rated warranties shall not be accepted.

6. The warranty shall contain no exclusion or limitation for damage to Roofing System caused by sustained wind speeds of 110 MPH or less.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Single-Ply Roof Membrane Adhesives: VOC levels of single-ply roof membrane adhesives used during construction shall not exceed 250 g/l VOC limit.

2.02 ROOFING SYSTEMS, GENERAL

A. General: Unless otherwise approved in writing by the Roofing Systems Manufacturer, products (including insulation, coverboard, fasteners, fastening plates and edgings, adhesives, pavers and pedestals) must be manufactured and supplied (or approved in writing) by the Roofing System Manufacturer and covered by the warranty.

B. Manufacturers / Products:

1. Carlisle SynTec, Inc. – *Sure-Weld Reinforced TPO*.

2. Substitutions: Refer to requirements in Section 01 6000.

2.03 TPO SINGLE-PLY ROOFING SYSTEM

A. MECHANICALLY FASTENED TPO ROOFING SYSTEM: Provide mechanically fastened thermoplastic polyolefin (TPO) single-ply roofing system as follows:

1. Install air / vapor barrier directly over roof deck and seal-off the entire perimeter of the roof airtight.

2. Install two (2) layers of rigid foam roof insulation followed by 1/2-inch coverboard and mechanically attach to roof deck as required to conform to windspeed and warranty requirements.

3. Install the single-ply roofing membrane over the insulation and mechanically fasten in conformance with the manufacturer's installation requirements as required to conform to windspeed and warranty requirements.

4. Extend single-ply roofing membrane up and over the top of parapet walls and fully adhere in conformance with manufacturer's installation requirements.

5. Provide protection mat under structures installed on top of the roofing membrane.

6. Install loose-laid protective layer of roofing membrane under items sitting on the roofing membrane at locations shown on the drawings.

B. ROOFING MEMBRANE: Membrane shall be 60 mil overall thickness, reinforced, thermoplastic polyolefin based sheet conforming to ASTM D6878 and the following physical properties:

1. Color: White (Carlisle).

C. COVERBOARD: 1/2-inch rigid, roof insulation panel composed of a high-density, closed-cell polyisocyanurate foam core laminated to a premium-performance, coated-glass fiber-mat facer; *SecureShield HD* manufactured by Carlisle.

D. RIGID ROOF INSULATION (UNIFORM THICKNESS AND TAPERED): Rigid foam board insulation consisting of a closed cell polyisocyanurate foam core bonded on each side to fiber reinforced facers. Conform to ASTM C1289, Type II, Class 1, Grade 2 and the following:

1. Application:

a. Uniform Thickness Insulation: Apply insulation in two (2) layers to achieve the R-value noted on the drawings.

b. Tapered Insulation: Apply over uniform thickness insulation in number of layers required to achieve required slope.

2. Board Edges: Square.

3. Compressive Strength per ASTM D1621: 25 psi minimum.

4. Manufactured / approved by Roofing System Manufacturer.

5. Thermal Value Standard: R-Value shall be based on Long Term Thermal Resistance Values per ASTM C1289 which provides for a 15 year time weighted average.

6. Total R-Value: As indicated on the Drawings.

7. Thermal Barrier: Insulation board shall be tested and qualified as not requiring a separate thermal barrier per IBC requirement, provide test data acceptable to Building Official upon request.

8. Tapered Insulation: Design the tapered insulation package configuration and slopes for positive water drainage and to accommodate the specific conditions found on this project.

a. NOTE: Slopes shown on Drawings are minimum as measured from a level plane (not the slope of the structural deck). Where structural deck slopes, provide tapered with additional slope to overcome slope of deck and provide positive water flow to drains.

E. AIR / VAPOR BARRIER: 40 mil thick composite consisting of 35 mil self-adhering rubberized asphalt membrane laminated to a 5 mil UV resistant poly film with an anti-skid surface.

1. Provide components and accessories required for a complete and functional air, vapor and water barrier system supplied by a single manufacturer, complete with manufacturer designed installation details for each condition found on the project.

a. Temporary Roof: The barrier system may be used as a temporary roof to dry in the building provided any damage is repaired prior to installation of roofing and the barrier system is not left exposed longer than recommended by the manufacturer.

2. The following product is acceptable:

a. *Carlisle 725R Air and Vapor Barrier / Temporary Roof* manufactured by Carlisle SynTec, Inc.

3. Termination Bar: 2-inch wide 18 gauge galvanized sheet metal, shop bend one edge at 20 degree angle for 1/2-inch width to give the bar some stiffness; provide in 10 foot lengths. Punch holes for fasteners at 8-inches on center maximum and within 2-inches of ends.

a. Metal Stud Framing / Backing Fasteners: Zinc-coated sheet metal screws.

F. FASTENERS AND PLATES: Provide Roofing System Manufacturer's recommended fasteners and plates to conform to the specific requirements of this project.

G. PRIMERS: Roofing System Manufacturer's recommended primer for each different substrate and application.

H. ADHESIVES: Provide the Roofing System Manufacturer's recommended Low VOC adhesives as required to conform to windspeed and warranty requirements and substrate considerations for this project.

I. VENT AND PIPE FLASHING: Premolded TPO pipe seal with stainless steel clamping ring and sealant for water-tight connection to pipe; approved by membrane manufacturer. Field fabricated flashings are not acceptable.

J. TPO-CLAD SHEET METAL: Carlisle *Sure-Weld Coated*, or approved. Provide to Section 07 6200 for fabrication and installation at thru-wall scuppers and wherever required by Roofing System Manufacturer.

K. WALKWAYS: Protective surfacing for roof traffic shall be manufacturer's standard approved walkway roll product in 60 mil thickness heat welded to the membrane per the manufacturer's recommendation. Locations are indicated on the Drawings.

L. CLEANERS: Provide Roofing System Manufacturer's recommended cleaners to conform to the specific requirements of this project.

M. MISCELLANEOUS: Provide any other materials / accessories required for a complete Roofing System conforming to the Roofing Systems Manufacturer's requirements and the specific conditions found on this project.

N. WOOD NAILERS AND INSULATION STOPS: Specified in Section 06 1000.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 07 6200

SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Sheet Metal Receiver and Counter Flashings.

B. Sheet Metal Copings / Cap Flashings.

C. Sheet Metal Eave Flashing.

D. Sheet Metal Flashings / Trim.

E. Continuous Sheet Metal Gutters.

F. Stainless Steel Gutters.

G. Thru-Wall Scuppers.

H. Sheet Metal Conductor Heads.

I. Downspouts.

J. Sheet Metal Flashing at Window Heads.

K. Sheet Metal Window / Louver Sills / Sill Pans.

L. Factory Edge Flashing (TPO Roofing System).

M. Sheet Metal Fillers and Miscellaneous Fabrications.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM A792 – Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by Hot-Dip Process.

2. ASTM D2244 – Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.

3. ASTM D4214 – Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films.

4. ASTM D4586 – Standard Specification for Asphalt Roof Cement, Asbestos-Free.

C. National Roofing Contractors Association (NRCA).

D. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA):

1. SMACNA – Architectural Sheet Metal Manual.

1.03 QUALITY ASSURANCE

A. Fabricator / Installer Qualifications:

1. Minimum of 5 years of experience in fabrication and installation of architectural sheet metal similar in material, design, and scope to this project with a record of successful in-service performance;

2. Installer shall employ only skilled, journeyman sheet metal workers to install the work of this section.

3. Provide list of at least 10 recently completed projects with addresses within 150 miles of this project upon request.

B. Workmanship shall be of the best quality; installed work shall be straight and true with neat corners and terminations, free of any visual defects; installation shall be fabricated and installed to inherently shed water without reliance on sealant and be permanently watertight.

1.04 SPECIAL REQUIREMENT

A. Section 07 6200 Sheet Metal Work: Sheet metal fabricator and installer shall either be employees of the Section 07 5400 installer, or shall be an established architectural sheet metal company that is subcontracted directly to the Section 07 5400 installer.

1. Fabrication and installation of sheet metal installed in single ply roofing system shall conform to the roofing manufacturer’s requirements for the roofing system provided.

1.05 WARRANTY / GUARANTEE

A. 3 Year Installer’s Guarantee: The Contractor shall guaranty the sheet metal installation for a period of three (3) years against defects in installed materials and workmanship including a three (3) year watertight guaranty. Correct any flashing or sheet metal item that is defective, improperly installed or leaking at no cost to the Owner.

B. 25 Year Pre-Finished Sheet Steel Warranty: Warrant coated finish for a period of 30 years against cracking, peeling, blistering, delamination, and chalking in excess of 8 units when tested per ASTM D4214, and free of fade or color change in excess of 5 DE Units when tested per ASTM D2244, without reducing or otherwise limiting any other rights to correction which the Owner may have under the contract documents. Manufacturer shall also warrant that metal will not fail structurally, perforate, rupture or leak due to corrosion for a period of 25 years.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2. Primers: VOC levels of primers used during construction shall not exceed 100 g/l VOC limit.

2.02 MATERIALS

A. Pre-Finished Sheet Metal: Steel sheet conforming to ASTM A792 with minimum yield of 50,000 psi and AZ50 (Zincalume or Galvalume) protective coating.

1. Finish Coating shall be a premium fluoropolymer coating with minimum of 70% Kynar 500 or Hylar 5000 base resin, factory-applied, oven baked and applied under controlled condition; 1 mil dry film thickness minimum (exclusive of primer); 30 year warranty.

2. Color: As shown on the Drawings.

   a. Factory metal edge color shall match prefinished sheet metal flashing color.

3. Protective film: Provide strippable plastic film, applied to finish of coil stock before forming, or plastic interleaf, applied to panel after forming.

4. Manufacturers: Same manufacturer providing metal roofing in Section 07 4000.

   a. AEP Span.

   b. The Bryer Company.

   c. Fabral.

   d. MBCI.

e. McElroy Metal.

f. Metal Sales.

g. Taylor Metal Products.

B. Pre-Primed Sheet Metal: Sheet steel conforming to ASTM A792 with minimum yield of 50,000 psi and AZ50 (Zincalume or Galvalume) protective coating.

1. Factory Pre-Primed Coating: Factory pre-primed under controlled conditions; primer coating shall be suitable as a prime coat for field-applied paint specified in Section 09 9000.

C. Stainless Steel Sheet: Conform to ASTM A 666, Type 304, mill finish.

D. TPO-Clad Sheet Metal: TPO coating applied to G90 galvanized sheet metal, heat-weldable, 24 gauge, match color of single ply roofing membrane provided by roofing manufacturer specified in Section 07 5400.

1. Obtain from Section 07 5400 for fabrication and installation wherever required by roofing manufacturer or shown on Drawings.

E. Factory Metal Edge: Factory fabricated low profile retainer bar and snap-on pre-finished fascia assembly for use with single ply roofing systems.

1. Performance Requirement: Provide fabrication methods and upgrade the specified sheet metal materials as required to provide fascias that are flat and free of waviness, oil-canning and distortion, including changing to higher yield steel sheet, increasing gauge of steel sheet, changing to 0.063 aluminum sheet or any other methods / materials required to produce a flat fascia installation. Adding a V-break in wide fascia is not an acceptable solution for this project. Fascias not conforming to this performance requirement will require removal and replacement with conforming fascias at fabricator's expense.

2. Manufacturer / Product: Sika Sarnafil / Hickman *Edge Grip Fascia,* or FiberTite *Architectural Metal Edge System FiberTite 200 Fascia.* Provide same manufacturer as the single ply roofing system provided by Section 07 5400.

3. Fascia Cover: 22 gauge prefinished Kynar coated galvanized sheet steel snap on cover with concealed splice plates.

a. Face Height: As shown on Drawings.

b. Color: Custom color matching the color indicated on the Drawings.

4. Retainer Bar Rail Material: 20 gauge galvanized sheet steel with 2 rows of pre-punched holes at 12 inches on center.

a. Rail Fasteners: 1-1/2-inch stainless steel hex head screws with washers.

5. Special Fabrications: Provide factory fabricated corners and end caps.

F. Welded Stainless Steel Wire Mesh: Type 304 welded stainless steel wire mesh, wires spaced at 1/4-inch on center each way, 0.022-inch wire diameter, available from TWP, Inc.

G. Galvanized Perforated Sheet Metal: 20 gauge G-90 galvanized steel sheet with 3/32-inch round perforations at 3/16-inches on center in staggered pattern; 23% open area.

H. PVC Pipe and Fittings: Schedule 40 PVC pipe and drainage fittings.

1. Provide transition fitting for connection to underground storm drain system.

2. Provide PVC primer and cement for cementing fittings watertight.

2.03 ACCESSORIES

A. Fasteners: Fasteners shall be manufactured in the United States or Canada.

1. Fasteners for Pre-Finished Sheet Metal Fabrications:

a. Exposed Condition – Wood or Sheet Metal Substrate: Provide color coated galvanized fasteners with rubber gasketed self-sealing head, match color of prefinished sheet metal.

b. Exposed Condition – Masonry / Concrete Substrate: 1/4-inch diameter Rawl Zamac Nailin expansion anchor with mushroom style head, and body formed of Zamac 7 alloy, Type 304 stainless steel nail; 1-1/2-inch minimum embedment; seal head with sealant.

1) Powder / power driven fasteners are not permitted.

c. Concealed Condition: Hot dipped galvanized nails or screws or expansion anchors with self-sealing neoprene head as appropriate for the substrate.

1) Powder / power driven fasteners are not permitted.

2. Fasteners for Continuous Cleats (Concealed): Hot dipped galvanized screws, nails or expansion anchors as appropriate for the substrate.

a. Powder / power driven fasteners are not permitted.

3. Fasteners for Downspout Brackets:

a. Into Steel Wall Framing, Sheet Metal Backing: #12 hot-dipped galvanized steel sheet metal screws.

b. Into Wood Framing: #12 hot-dipped galvanized steel wood screws; minimum 1-inch embedment in wall framing.

c. Into Masonry: Hot-dipped galvanized steel or stainless steel expansion anchors, 1/4-inch diameter (minimum), 1-3/4-inch embedment (minimum).

1) Powder / power driven fasteners are not permitted.

B. Tape for Separation between Dissimilar Metals: 10 mil PVC adhesive backed tape.

C. Sealant:

1. Exposed Joint Condition and Gutter Seal: Silicone sealant; DowSil *795* or GE Momentive *Silpruf* in color matching sheet metal color.

2. Concealed Lap Joint Condition: Butyl, single component, TT-S-001657, Type I, Tremco *Butyl Sealant*, or approved equivalent.

D. Plastic Cement: Asphalt cutback mastic conforming to ASTM D4586 Type II.

2.04 FABRICATION

A. General:

1. Field measure and verify site conditions prior to fabrication, accommodate field conditions.

2. Fabricate in accordance with SMACNA (Architectural Sheet Metal Manual), NRCA and as required by roofing manufacturer to profiles shown on Drawings (where conflicts exist, the most restrictive requirement shall apply).

3. Form sections true to shape, accurate in size, square, and free from distortion or defects.

4. Furnish in minimum 10 foot lengths.

5. Hem exposed edges 1/2-inch on underside.

6. Lap joints shall be fabricated to allow 6-inches minimum overlap.

7. Fabricate head flashings in walls (at windows, doors, louvers, etc.) with end dams to prevent water running off ends and behind siding.

8. Shop fabricate items including corners, end terminations and special conditions for neat appearance, field bending and fabrication is not acceptable.

9. Protect pre-finished metal from scratches or damage during fabrication.

10. End conditions, corners, transitions, terminations, and changes in the plane or direction of flashings, copings, gutters and other sheet metal fabrications shall be custom fit and fabricated to accommodate field conditions and to provide a weatherlapped, watertight assembly and transition. Workmanship and custom fabrications shall conform to similar conditions found in SMACNA Manual and to good sheet metal fabrication practice and shall not rely solely on sealant for their watertight integrity.

B. Receiver and Counter Flashing: Fabricate to match configuration shown on the Drawings from pre-finished sheet metal, 24 gauge or as shown on Drawings.

1. Lay out and fabricate for 6-inch lap joints.

2. Cut back hem and fabricate laps with male and female ends to allow for thickness of metal and sealant for proper fit and flush appearance.

3. Fabricate for tight spring action contact to roofing / wall behind; provide wind restraint clips at bottom of counter flashing where tight spring fit cannot be achieved.

4. Counter Flashing Corners: Fabricate watertight with neat appearance, bend at corner and extend past corner at least 12-inches.

C. Copings / Cap Flashings: Fabricate to match configuration shown on the Drawings and SMACNA Figure 3-4A and 3-4G from prefinished sheet metal.

1. Provide continuous 22 gauge cleat to lock into hem on exposed outside face.

2. Fasten concealed inside face with screw fasteners.

3. Gauge:

a. Coping widths up to 18-inch: 22 gauge.

b. Coping widths over 18-inches: 20 gauge.

4. Seams: 1-inch high standing seam.

5. Outside Corners: Bend outside vertical face to form corner, overlap top and seal watertight.

6. Inside Corners: Provide 12-inch wide backup metal to support and align ends / corners of flashing; miter cut flashing neatly with hairline crack.

D. Eave Flashing: Fabricate to match configuration shown on the Drawings and as required by single ply roofing manufacturer from TPO clad sheet metal, 24 gauge.

1. Lay out and fabricate for 6-inch lap joints.

2. Cut back hem and fabricate laps with male and female ends to allow for thickness of metal and sealant for proper fit and flush appearance.

3. Shop fabricate outside corners for neat appearance.

E. Flashing / Trim: Fabricate to match profiles / configurations shown on Drawings from 24 gauge factory pre-finished sheet metal.

1. Where wall flashings are installed in siding / cladding that is scheduled to be field painted, provide pre-primed sheet metal.

2. Slope horizontal leg of flashings to provide positive water drainage.

3. Provide end dams at head and sill flashings to prevent water from leaking off end of flashing behind siding / trim.

F. Continuous Gutters (Seamless): Fabricate to match gutter size and configuration / profile shown on Drawings (similar to SMACNA Style I, Figure 1-2) from pre-finished sheet metal; minimum 22 gauge.

1. Fabricate on site in continuous full length (seamless) gutter sections as shown / required for each roof eave condition using a continuous roll-formed gutter machine.

a. Sectional gutters with sealant joints are not acceptable.

2. Gutter Profile / Dimensions: As shown on Drawings.

a. Continuous Gutters with similar profile, dimensions and capacity will be considered, submit profile and dimensions to Architect for review in accordance with Section 01 6000.

3. Gutter Thermal Movement: Allow space for thermal expansion / contraction of gutter when fabricating gutters between fixed points or with gutter return around corner to prevent buckling or pulling apart of corner joints; refer to SMACNA Manual for recommended allowance for expansion / contraction based on metal type, gutter length and 100 degree F temperature differential.

a. Anchor Points: Screw attach gutter to eave hangar flashing at a single location mid-point of gutter length or as noted on Drawings to allow gutter expansion / contraction in both directions from fixed anchor point.

4. Corners: Miter cut and overlap corners.

    a. Seal watertight with Gutter Sealant.

    b. Install solid head rivets for secure connection.

5. End Closures: Provide watertight end closures, fabricate to fit gutter profile:

    a. Seal water-tight with Gutter Sealant.

6. Expansion Joints: Fabricate butt type gutter expansion joints per SMACNA Figure 1-7 with watertight end closures and cover plate matching gutter profile as required to accommodate expansion / contraction of gutter:

    a. Seal watertight with sealant.

7. Outlet Tubes: Provide 4-inch long round drain outlet tubes at each downspout location fabricated with turned flange top per SMACNA Figure 1-24C; seal and rivet for watertight joint; size diameter to fit easily into downspout pipe. Install in gutter similar to SMACNA Figure 1-33D.

    a. Seal lap joint watertight with Gutter Sealant and attach securely to gutter with solid head rivets.

8. Gutter Support: Provide continuous eave flashing interlocked into continuous support hook at top of gutter for hanging gutter as shown on Drawings.

9. Gutter Straps: Provide 22 gauge pre-finished sheet metal straps locked into front seams on gutter and nailed into roof eave as shown on the Drawings.

10. Downspout Screens: Provide leaf screens at each downspout outlet fabricated from welded stainless steel wire mesh fabricated to fit snugly down into outlet tube approximately 1-inch and be easily removable for cleaning; mechanically lap seam together to hold shape. Refer to SMACNA Figure 1-24D.

G. Stainless Steel Gutter at Steel Canopies: Fabricate to match gutter configuration / profile shown on Drawings from 24 gauge stainless steel sheet.

    1. Rivet and solder seams and ends for watertight joints.

    2. Fabricate stainless steel downspout tube; rivet and solder into gutter.

H. Thru-Wall Scuppers: Fabricate to match configuration shown on the Drawings and similar to SMACNA Figure 1-27A from PVC-Clad sheet metal. Fabricate trim flashing around perimeter of scupper on exterior side from 24 gauge pre-finished galvanized steel sheet so that stainless steel is concealed from view.

1. Fabricate per roofing membrane system manufacturer's requirements to achieve warrantable system.

2. Shop fabricate to conform to field dimensions and conditions.

3. Fabricate bottom of scupper with minimum 1/2 inch per foot slope toward exterior to facilitate positive drainage.

I. Conductor Head: Fabricate from 24 gauge prefinished sheet metal to match configuration shown on the Drawings and similar in SMACNA Fig. 1-25F.

1. Fabricate with lap seams sealed watertight with sealant and riveted.

2. Removable Screen: Fabricate screen from welded stainless steel wire mesh with 26 gauge stainless steel sheet metal frame.

a. Fabricate frame in U-shape to sandwich mesh tightly.

b. Rivet or spot weld corners of frame.

c. Solder mesh into frame.

J. Downspouts and Supports: Fabricate downspouts extending between drain outlet tube at gutter and storm drain system on grade; fabricate fittings required to accommodate conditions.

1. Sizes as shown on Drawings.

2. Downspouts: Fabricate from 24 gauge pre-finished galvanized sheet steel, refer to Drawings for layout.

3. Layout and cut downspout for neat installation; align plumb and square with walls; slope horizontal sections down at 1/2-inch per foot slope.

4. Cleanouts: Provide PVC DWV flush cleanout tee fittings at bottom or each downspout.

5. Downspout Brackets: Fabricate from pre-finished sheet metal as shown on Drawings, 20 gauge and with equal spacing not exceeding 5 to 6 feet or as indicated on Drawings.

K. Flashing at Window Heads: Fabricate to match profiles / configurations shown on Drawings from 24 gauge factory pre-finished sheet metal.

1. Slope horizontal leg of flashings to provide positive water drainage.

2. Provide end dams at head and sill flashings to prevent water from leaking off end of flashing into cavity behind masonry veneer.

L. Window / Louver Sills: Fabricate to match profile / configuration shown on Drawings from 24 gauge factory pre-finished sheet metal.

1. Sills shall extend full depth to interior face of window frame.

2. Coordinate back dam location to align directly behind interior face of window / louver frame for proper fit.

3. Provide end dams and back dam to prevent water from leaking into wall assembly or building interior.

a. Connect back dam and end dam at intersecting corners by overlapping a tab and riveting or spot welding together; seal lap joint and corner watertight with silicone sealant.

4. Hem exposed edge 1/2-inch.

M. Factory Edge Flashing: Coordinate with Section 07 5400 for installation of roof edge flashing. Fabricate covers from 24 gauge pre-finished sheet metal.

N. Sheet Metal Fillers and Miscellaneous Fabrications: Fabricate from 22 gauge pre-finished galvanized sheet steel to match configuration shown on the Drawings.

1. Field verify dimensions and connections.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 07 7233

ROOF HATCH

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Roof Hatch.

B. Hatch Safety Guardrail.

C. Safety Post.

1.02 PRODUCT HANDLING

A. Materials shall be delivered in manufacturer's original packaging.

B. Store materials in a dry, protected, well-vented area. The contractor shall thoroughly inspect product upon receipt and report damaged material immediately to delivering carrier and note such damage on the carrier's freight bill of lading.

1.03 WARRANTY

A. Manufacturers shall warrant that roof hatch shall be free of defects in material and workmanship for a period of five (5) years. Should a part fail to function in normal use within this period, manufacturer shall furnish a new part at no charge.

PART 2 - PRODUCTS

2.01 ROOF HATCH

A. Manufacturers: Subject to their ability to provide products conforming with the requirements of this section and as shown on the Drawings, the following manufacturers may provide products:

1. BILCO (basis of design).

2. Milcor.

3. Nystrom.

4. Precision Ladder.

5. Substitutions: Refer to Section 01 6000 for substitution procedures and requirements.

B. Roof Hatch: *Type S*-50TB *Thermally Broken Roof Hatch* manufactured by BILCO.

1. Size: 36-inches x 30-inches

2. Configuration: Single leaf, hinged cover.

3. Construction: Heavy gauge welded aluminum construction; weathertight, with fully welded corner joints on cover and curb; pre-assembled.

4. Cover: 11 gauge aluminum with a 4-inch beaded flange with formed reinforcing members.

    a. Operation of cover shall not be affected by temperature.

    b. Reinforced to support a minimum live load of 40 psf with a maximum deflection of 1/150th of the span; and 20 psf wind uplift.

    c. Heavy extruded EPDM rubber gasket that is bonded to the cover interior to assure a continuous seal when compressed to the top surface of the curb.

    d. Cover Insulation: 3-inch thick polyisocyanurate rigid foam insulation with an R-value of 20.3, fully covered and protected by an 18 gauge aluminum liner.

5. Curb: Shall be 12-inches in height and fabricated from 11 gauge aluminum.

    a. Formed with a 5-1/2-inch flange with 7/16-inch holes provided for securing to the roof deck.

    b. Equipped with an integral metal cap flashing of the same gauge and material as the curb, fully welded at the corners, with stamped tabs at 6-inches on center to be bent inward to hold single ply roofing membrane securely in place.

    c. Curb insulation: 3-inch thick polyisocyanurate rigid foam insulation with an R-value of 20.3.

6. Cover Lifting Mechanisms: Compression spring operators enclosed in telescopic tubes to provide, smooth, easy and controlled cover operation throughout the entire arc of opening and closing.

    a. The upper tube shall be the outer tube to prevent accumulation of moisture, grit and debris inside the lower tube assembly.

    b. The lower tube shall interlock with a flanged support shoe through bolted to the curb assembly.

7. Hardware

    a. Heavy pintle hinges shall be provided.

b. Cover shall be equipped with a spring latch with interior and exterior turn handles.

c. Interior and exterior padlock hasps.

d. The latch strike shall be a stamped component bolted to the curb assembly.

e. Cover shall automatically lock in the open position with a rigid hold open arm equipped with a 1-inch diameter red vinyl grip handle to permit easy release for closing.

f. Compression spring tubes shall be an anti-corrosive composite material and all other hardware shall be zinc plated and chromate sealed. Springs shall have an electro-coated acrylic finish for corrosion resistance.

g. Cover hardware shall be bolted into heavy gauge channel reinforcing welded to the underside of the cover and concealed within the insulation space.

8. Finish: Mill finish aluminum.

C. Hatch Safety Guardrail: *Bil-Guard 2.0 Hatch Railing System Model RL2-STB* manufactured by BILCO.

1. Performance Requirements:

a. High visibility safety yellow color shall be molded in.

b. Hatch rail system shall attach to the cap flashing of the roof hatch and shall not penetrate any roofing material.

c. Hatch rail system shall satisfy the requirements of OSHA 29 CFR 1910.23 and shall meet OSHA strength requirements with a factor of safety of two.

d. UV and corrosion resistant construction with a five year warranty.

e. Self-closing gate shall be provided with hatch rail system.

2. Posts and Rails: Shall be round pultruded reinforced fire retardant yellow fiberglass treated with a UV inhibitor.

3. Hardware: Mounting brackets shall be 1/4-inch thick hot dip galvanized steel. Hinges and post guides shall be 6063T5 aluminum. Fasteners shall be Type 316 stainless steel.

D. Safety Post: *Model LU-1 LadderUp Safety Post* manufactured by BILCO.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 07 8400

FIRESTOPPING / SMOKE SEAL SYSTEMS

PART 1 - GENERAL

1.01 WORK INCLUDES

A. Firestopping and Smoke Seal Systems.

1.02 SCOPE OF WORK

A. Provide Firestopping / Smoke Seal System(s) conforming to IBC, ASTM E814 and Building Official requirements at the following locations:

1. Around structural, mechanical, electrical and other penetrations through fire rated assemblies.

1. At cracks, gaps and openings in fire rated assemblies.

2. At perimeter of fire rated assemblies where there are cracks, gaps, voids or openings.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM C665 – Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

2. ASTM E814 – Standard Test Method for Fire Tests of Penetration Firestop Systems.

C. Factory Mutual Research Corporation (FM):

1. FM P7825 - Approval Guide; Factory Mutual Research Corporation.

D. International Building Code (IBC).

E. Intertek Testing Services NA, Inc. (ITS):

1. ITS (DIR) - Directory of Listed Products.

F. Underwriters Laboratories Inc. (UL):

1. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.

G. Warnock Hersey (WH):

1. WH (CERT) - Certification Listings.

1.04 QUALITY ASSURANCE

A. Fire Testing: Provide firestopping / smoke seal system designs which provide the required fire ratings when tested in accordance with ASTM E814.

1. Listing in the current classification or certification books of UL, FM, or ITS (Warnock Hersey) will be considered as constituting an acceptable test report.

B. Installer Qualifications: Installer shall have at least 5 years of experience installing firestop systems in buildings of similar construction to that found on this project.

C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with a minimum three years of experience.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2. Primers: VOC levels of primers used during construction shall not exceed 100 g/l VOC limit.

2.02 FIRESTOPPING / SMOKE SEAL SYSTEMS

A. Manufacturers / Product Group and ICC Evaluation Service Report Number:

1. 3M Company, Inc. *Fire Protection Products* – ICC Report NER-243.

2. Tremco, Inc. *Through-Penetration Fire-Stop Systems* – ICC Report ER-3198.

3. United States Gypsum Company *USG Firestop Penetration Systems* – ICC Report ER-5050.

4. W.R. Grace and Company *FlameSafe Products* – ICC Report ESR-1043.

B. Firestopping / Smoke Seal System(s): Provide complete Firestop / Smoke Seal System(s) that conform to the requirements of Chapter 7 of the International Building Code (IBC) and are designed, tested and fire-resistance rated to resist for a prescribed period of time the spread of fire through each different type of penetration, fire rated assembly and construction type found in this Project.

1. Firestop / Smoke Seal System(s) shall be tested and listed by one of the testing agencies listed in “REFERENCES” section above and shall be acceptable to the Building Official having jurisdiction.

2. The F and T rating criteria for the Firestop / Smoke Seal System(s) shall be in accordance with ASTM E814 and IBC.

3. Firestopping / Smoke Seal Exposed to View: Firestop / Smoke Seal System must either be concealed from view behind the finish; or have an appearance matching the adjacent finish appearance and be paintable; or have a suitable finished trim or escutcheon to cover the firestopping.

4. Provide firestopping / smoke seal products from the same manufacturer on any single assembly or condition; do not mix different manufacturer’s products.

C. Rock (Mineral) Wool: Rock wool insulation spun from slab or basalt rock; 2.8 pound density, with formaldehyde-free binder, friction fit, unfaced, conform to ASTM C665; Roxul *AFB* or approved equal.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 07 9000

JOINT SEALERS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Interior Joint Sealers.

B. Exterior Joint Sealers.

C. Spray Foam and Spray Seal.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM C834 – Standard Specification for Latex Sealants.

2. ASTM C920 – Standard Specification for Elastomeric Joint Sealants.

3. ASTM C1193 – Standard Guide for Use of Joint Sealants.

4. ASTM D1667 – Standard Specification for Flexible Cellular Materials – Poly (Vinyl Chloride) Foam (Closed-Cell).

1.03 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with a minimum of 5 years of experience.

B. Applicator Qualifications: Company specializing in performing the work of this section with a minimum of 5 years of experience.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.05 COORDINATION

A. Coordinate the work with all sections referencing this section.

1.06 GUARANTEE

A. The Contractor shall guarantee the sealant installation for a period of 5 years against defects in installed materials and workmanship including a 5-year watertight warranty. Correct any sealant that is found to be defective, improperly installed or leaks within a 5-year period at no cost to the Owner.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2. Primers: VOC levels of primers used during construction shall not exceed 100 g/l VOC limit.

2.02 INTERIOR SEALANTS

A. General Purpose Interior Sealant: Siliconized acrylic emulsion latex; ASTM C834, single component, paintable.

1. Product: *AC-20+Silicone* manufactured by Pecora or similar by Tremco or approved.

2. Color: Match color of adjacent materials; or as selected by Architect.

3. Applications: Use for:

a. Interior wall and ceiling control joints.

b. Joints between interior door / relite frame and wall surfaces.

c. Joints between interior side of window frames and wall surfaces.

d. Between GWB and other materials.

e. Joints between counter backsplash / sidesplash and wall.

f. Other interior joints for which no other type of sealant is indicated.

B. Plumbing Fixture / Tile Sealant: Neutral-curing silicone; ASTM C920, Class 50; single component, mildew resistant.

1. Product: *898 Sanitary Mildew Resistant Silicone Sealant* manufactured by Pecora or approved.

2. Color: Match color of plumbing fixture or adjacent materials as approved by Architect.

3. Applications: Use for:

a. Joints between plumbing fixtures and counter, floor and wall surfaces.

b. Interior joints in stone and ceramic tile or between tile and adjacent materials.

C. Exposed Floor Joint Sealant: Polyurethane, single component, pourable grade, moisture cured.

1. Product: Pecora *NR-201* or approved.

2. Color: Color as selected to match floor color.

3. Applications: Use for:

a. Control Joints in Concrete Floor Slab Exposed to View.

D. Spray Foam Sealant (For Gap Filler): Spray polyurethane foam sealant in a

2.03 EXTERIOR SEALANTS

A. Exterior Joint Sealant: Silicon; ASTM C920, Type S, Grade NS, Class 50, Uses NT, M, G, A and O; single component.

1. Color: Color as selected to match adjacent material, selected from manufacturer's full range of available colors.

2. Product: *795 Silicone Building Sealant* manufactured by DowSil.

3. Applications: Use for:

a. Masonry control joints (sand sealant to match mortar joint or color as approved by Architect).

b. Precast concrete wall cap joints (sand sealant to match mortar joint or color as approved by Architect).

c. Joints between window frames and adjacent construction (match frame color).

d. Joints between door and louver frames and adjacent construction (match frame color).

e. Other exterior joints for which no other sealant is indicated.

B. Exterior Joint Sealant: Polyurethane; ASTM C920, Type S, Grade NS, Class 25, Uses NT, M, G, A and O.

1. Color: Color as selected to match adjacent material, selected from manufacturer's full range of available colors.

2. Product: *Dynatrol I XL* single component or *Dynatrol II* two component (as required to achieve required color) manufactured by Pecora, or approved.

3. Applications: Use for:

a. Sealant for sheet metal flashing installation / joints.

b. Exterior locations requiring painted finish over sealant.

C. Exterior Metal Lap Joint Sealant: Butyl rubber, nondrying, nonskinning, noncuring.

1. Product: *BC-158 Butyl Rubber Sealant* manufactured by Pecora or approved.

2. Applications: Use for:

a. Concealed sealant bead in lap joints for sheet metal work.

b. Concealed sealant bead in lap joints in prefinished wall and roof panels.

c. Sealant for bedding door thresholds.

d. Do not use in any location exposed to view or exposed to the sun.

2.04 SPRAY FOAM AND SPRAY SEAL

A. Spray Foam: Single component polyurethane foam sealant which expands to take the shape of cracks and voids and permanently seals to substrate surfaces.

1. Code Approval: ICC Evaluation Service, Inc. ES Report ESR-1961.

2. Fire Performance:

a. Flame Spread Index Per ASTM E84: 25 or less.

b. Smoke Developed Index Per ASTM E84: 450 or less.

3. Thermal Barrier: None required when tested in accordance with UL 1715.

4. Manufacturer / Product: Dow Chemical Company *Great Stuff* (6 different products and numerous different canister sizes available).

a. Select the specific *Great Stuff* product and canister size to best fit the application and site conditions.

5. Installation: Use Dow foam dispensing guns for installing spray foam, do not install with the disposable plastic straw provided.

B. Spray Seal: A sprayable acrylic mastic air barrier for sealing gaps and joints where maximum movement is required in both fire-rated and non-fire-rated construction.

1. Manufacturer / Product:

a. Fire-Rated Assemblies / Construction: Hilti *CP672 Firestop Joint Spray* or approved equal.

b. Non-Fire-Rated Assemblies / Construction: Hilti *CP572 Smoke and Acoustic Spray* or approved equal.

2. Accessories:

a. Mineral Wool Backing: 3 lb / cf mineral wool insulation.

2.05 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: Round foam rod compatible with sealant of type recommended by sealant manufacturer for type of sealant; ASTM D1667, oversized as recommended by sealant manufacturer.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

E. Sand (For Sanded Joints): Provide sand matching color of masonry mortar.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 08 1100

HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Interior Hollow Metal Doors and Frames.

B. Exterior Hollow Metal Doors and Frames.

C. Hollow Metal Relite Frames.

1.02 PERFORMANCE REQUIREMENTS

A. Energy Performance: The following requirements apply only to exterior hollow metal doors and frames:

1. Doors with no Glazing: Doors shall have a U-value of at least 0.70.

a. Single Door: Air Infiltration Rate of 0.3 cfm/ft^2 or less.

b. Double Door: Air Infiltration Rate of 1.0 cfm/ft^2 or less.

2. Doors and frames shall comply with the performance requirements of the 2019 Building Energy Efficiency Standards for Residential and Nonresidential Buildings California TITLE 24, PART 6.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. Americans with Disabilities Act (ADA).

1. ADAAG – Accessibility Guidelines for Buildings and Facilities.

C. Steel Door Institute (ANSI / SDI):

1. ANSI / SDI A250.6 – Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.

2. ANSI / SDI A250.8 – Recommended Specifications for Standard Steel Doors and Frames.

3. ANSI / SDI A250.10 – Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.

4. SDI 111-A – Standard Steel Door Frame Details.

D. American Society for Testing and Materials (ASTM):

1. ASTM A568 – Standard Specification for Steel, Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for.

2. ASTM A591 – Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel.

3. ASTM A653 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

4. ASTM A924 – Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.

5. ASTM A1008 – Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.

6. ASTM A1011 – Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, and Ultra High Strength.

7. ASTM D3359 – Standard Test Methods for Rating Adhesion by Tape Test.

E. International Code Council (ICC):

1. ICC / ANSI A117.1 – Accessible and Usable Buildings and Facilities.

F. National Fire Protection Association (NFPA):

1. NFPA 101 – Life Safety Code.

2. NFPA 252 – Standard Methods of Fire Tests of Door Assemblies.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Provide products from a single manufacturer who is a member of the Steel Door Institute.

B. Regulatory Requirements: Rated door assemblies shall have been tested to meet conditions of NFPA 252 as required by NFPA 101 Section 6-2.3.3.

1. Code Compliance: Comply with the International Building Code.

2. Temperature rise door assemblies shall meet requirements for 250 degree rating.

3. Accessibility Compliance: Door hardware shall meet the requirements of ADAAG, and ICC / ANSI A117.1, Accessible and Usable Building and Facilities.

4. ADA Accessibility Tolerances: Comply with ADA tolerances shown on the Drawings.

1.05 DELIVERY, STORAGE AND HANDLING

A. Protect products from moisture, construction traffic, and damage.

B. Store vertically under cover. Do not use non-vented plastic or canvas shelters. Should wrappers become wet, remove immediately.

C. Place units on 4-inch high wood sills or in a manner that will prevent rust or damage. Provide 1/4-inch space between doors to promote air circulation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Acceptable manufacturer's shall be a member of Steel Door Institute with products conforming to these specifications.

2.02 MATERIALS

A. Steel Sheet for Doors and Frames:

1. Cold Rolled Steel: ASTM A1008 and ASTM A568.

2. Hot Rolled Steel: Pickled and oiled, ASTM A1011 and ASTM A568.

3. Galvanized Steel: ASTM A924 and A653; hot-dipped zinc-coated steel.

B. Steel Sheet for Anchors and Accessories: Electrolytically deposited zinc coated steel; ASTM A591, coating 40Z (12G), minimum.

C. Spray Foam Fill: Single component polyurethane foam sealant which expands to take the shape of cracks and voids and permanently seals to substrate surfaces.

1. Code Approval: ICC Evaluation Service, Inc. ES Report ESR-1961.

2. Fire Performance:

a. Flame Spread Index Per ASTM E84: 25 or less

b. Smoke Developed Index Per ASTM E84: 450 or less

3. Thermal Barrier: None required when tested in accordance with UL 1715.

4. Manufacturer / Product: Dow Chemical Company *Great Stuff* (6 different products and numerous different canister sizes available).

   a. Select the specific *Great Stuff* product and canister size to best fit the application and site conditions.

5. Installation: Use Dow foam dispensing guns for installing spray foam, do not install with the disposable plastic straw provided.

2.03 HOLLOW METAL (HM) DOOR FRAMES

A. Frames: ANSI / SDI A250.8 Level 3 – Extra Heavy Duty, Model 1 – Full Flush is the minimum performance standard; provide the following **special requirements** that exceed this minimum standard:

   1. Regular Use Frames: 16-gauge steel sheet, fabricated to size, profile and configuration shown on Drawings.

      a. Specialty Exterior Frames:

         1) Fabricate frames with thermal break. Frames shall be similar to Curries *Mercury Thermal Break Frames.*

         2) Continuous exterior flange to seal air and water barrier to.

   2. Seclusion Room Frames: ANSI / SDI A250.8 Level 4 – Maximum Duty, Model 1 – Full Flush is the minimum performance standard.

      a. 14-gauge steel sheet, fabricated to size, profile and configuration shown on Drawings.

   3. Corner Construction: Face weld corners, grind welds flush and smooth.

   4. Provide temporary removable spreader bars on bottom of each frame.

   5. Reinforcement for Hardware: Conform to ANSI / SDI A250.6 and the following special requirements:

      a. Hinge Reinforcement: Provide 7-gauge hinge reinforcement in doors, full width of frame (lesser gauge with equivalent threads is not acceptable). Weld reinforcement securely to frame.

      b. Floor Anchors: Provide 14-gauge floor anchors on frames, full width of frame, securely welded to foot of each frame leg, with 2 holes in each anchor for attachment to floor.

         1) Concrete Anchorbolts: Minimum 1/4-inch x 2-inch steel expansion anchorbolts.

c. Closer: Provide reinforcement sleeve full width of frame, formed to match frame profile.

d. Jamb Anchors: Provide jamb anchors per SDI 111-A.

1) Wood Framing: Sheet Metal Wood Stud Anchor with wrap around nail on straps.

2) Jamb Anchors shall be welded to the frames.

6. Holes for Silencers: Drill stops to receive rubber silencers on frames not scheduled for weather-stripping or smoke gasket.

7. Glazed Lights in Frames: Provide rolled steel channel shape glazing stops prepared for countersunk oval head screws and butted corners.

8. Exterior Frames: Galvanized steel.

2.04 HOLLOW METAL (HM) DOORS

A. Doors: ANSI / SDI A250.8 Level 2 – Heavy Duty, Model 2 – Seamless is the minimum performance standard; provide the following **special requirements** that exceed this minimum standard:

1. Regular Use Doors: 18-gauge sheet steel, fabricated to size and configuration shown on Drawings.

2. Seclusion Room Doors: ANSI / SDI A250.8 Level 4 – Maximum Duty, Model 2 – Seamless is the minimum performance standard.

a. 14-gauge sheet steel, fabricated to size and configuration shown on Drawings

3. Hardware Reinforcement: Conform to ANSI / SDI A250.6.

4. Door Construction:

a. Face: Full flush, no seams.

b. Edge Seam: Seamless, continuous welded and ground smooth.

c. Edge Bevel: Bevel strike side.

d. Hinge Cutouts: Provide handed hinge cutouts for door swing (non-handed doors with hinge fillers are not allowed).

e. Edge Reinforcement Channels: Provide doors with full height 14-gauge steel lock channels (rails) and 12-gauge steel hinge channels (rails) concealed in construction of door and securely welded to both faces.

5. Door Core:

   a. Interior Doors: Honeycomb cores.

   b. Exterior Doors: Insulated core meeting the requirement listed in "Performance Requirements" in Part 1.

   c. Fire Rated Doors: Cores in accordance with listed construction.

6. Exterior Door Tops: Invert reinforcement channel to prevent place for water to collect and seal the top of door watertight.

7. Door Undercuts: Provide undercuts to accommodate door hardware provided by Section 08 7100 and as required by applicable codes.

8. Door Vision Panels Frames: Fabricated steel frame with mitered corners designed to securely hold glazing and meet fire door requirements, prime painted. Provide glazing tape and wet seal at exterior door vision panels.

9. Exposed Screws: Oval head, center pin Torx drive screws.

10. Louver: Fabricated steel louver and frame with fully welded mitered corners, prime painted.

    a. Size: As required to meet the mechanical design air flow requirements.

    b. Stops: Non-removable 18 gauge stops on secure side of interior doors. Screw applied removable stops on inside.

11. Exterior Doors: Galvanized steel.

2.05 FABRICATION

A. Confirm field conditions and coordinate depth of each frame throat to match thickness of wall or other configuration shown on Drawings.

B. Fabricate steel doors and frames to sizes and profiles shown on the Drawings in conformance to the requirements of this section, ANSI / SDI A250.6, ANSI / SDI A250.8 and fire listing requirements.

C. Prepare and reinforce steel doors and frames to receive door hardware specified in Section 08 7100.

D. Finish:

1. Factory Prime Paint Finish: Prime paint surfaces of doors and frames under controlled conditions at the factory.

a. Doors and frames shall be thoroughly cleaned, and chemically treated to insure maximum paint adhesion.

b. Surfaces of the door and frame exposed to view shall receive a factory applied coat of rust inhibiting primer, either air-dried or baked-on.

c. The finish shall meet the requirements for acceptance stated in ANSI / SDI A250.10.

2. Shop Prime Paint Touch-Up: Repair any factory applied prime paint damaged by shipping or by shop modifications to doors / frames.

a. Surface preparation, prime paint and application shall conform to factory finishing standards and be compatible with field painting specified in Section 09 9000.

b. The finish shall meet the requirements for acceptance stated in ANSI / SDI A250.10.

3. Performance Requirement: Primer bond to steel substrate shall pass adhesion field testing per ASTM D3359, Type A Cross Hatch.

2.06 DOOR AND FRAME CLEARANCES

A. Door and frame clearances shall conform to ANSI / SDI A250.8, 2.06 and fire listing requirements on fire rated doors.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 08 1400

WOOD DOORS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Flush Hardwood Veneer Solid Core Rated and Non-Rated Wood Doors.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. Hardwood Plywood and Veneer Association (HPVA).

C. National Fire Protection Association (NFPA):

1. NFPA 80 – Standard for Fire Doors and Fire Windows.

2. NFPA 252 – Standard Methods of Fire Tests of Door Assemblies.

D. Underwriters Laboratory Inc. (UL):

1. UL 10C – Standard for Positive Pressure Fire Tests of Door Assemblies.

E. Window and Door Manufacturer's Association (WDMA):

1. ANSI / WDMA I.S. 1A – Interior Architectural Flush Wood Doors.

1.03 QUALITY ASSURANCE

A. Perform work in accordance with ANSI / WDMA I.S.1A.

B. Manufacturer: Company specializing in manufacturing the products specified in this section with a minimum ten years of experience.

1.04 DELIVERY, STORAGE AND PROTECTION

A. Accept doors on site in manufacturer's packaging. Inspect for damage.

B. Protect doors with individual resilient packaging.

C. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer. Break seal on site to permit ventilation.

1.05 PROJECT CONDITIONS

A. Coordinate the work with door opening construction, door frame and door hardware installation.

1.06 WARRANTY

A. Provide manufacturer's warranty for the following term:

1. Interior Doors: Life of installation.

B. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Wood Adhesives: VOC levels of wood adhesives used during construction shall not exceed 30 g/l VOC limit.

2. Other Adhesives: VOC levels of other adhesives used during construction shall not exceed 50 g/l VOC limit.

3. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

4. Stains: VOC levels of stains used during construction shall not exceed 250 g/l VOC limit.

2.02 MANUFACTURERS

A. Manufacturers: Subject to conformance with the requirements of this section, the following manufacturers may provide wood doors:

1. Eggers.

2. Marshfield Door Systems.

3. Vancouver Door.

4. VT Industries.

5. Substitutions: Refer to Section 01 6000 for substitution procedures and requirements.

2.03 FLUSH WOOD DOORS

A. Rated and Non-Rated Flush Wood Doors: Bonded Core 5 or 7 ply doors conforming to ANSI / WDMA I.S. 1A and the following:

1. Grade: ANSI / WDMA I.S. 1A Premium Grade.

2. Duty Level: ANSI / WDMA I.S. 1A Extra Heavy Duty.

3. Stiles and rails bonded to core.

4. Cores:

a. Non-Fire-Rated Door Cores: Structural composite lumber core (engineered wood); particleboard cores are not allowed.

b. Fire-Rated Door Construction: Hourly ratings as indicated on Drawings; construction matching fire test listing; doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

1) Affix permanent metal labels attesting to fire resistance.

2) At exit enclosures, provide units listed for 450-degree F maximum temperature rise rating for 30 minutes of exposure.

3) Doors shall be tested and labeled to meet requirements of NFPA 80, fire label shall include the "S" endorsement; provide concealed seal integral in door edge.

5. Stiles and Rails: 1-inch minimum thickness solid hardwood, finger-jointing not allowed; vertical edge species solid hardwood matching hardwood veneer face, stiles and rails bonded to core.

2.04 DOOR FACINGS

A. Hardwood Veneer: Hardwood veneer suitable for transparent finish:

1. Hardwood Veneer Species: White Oak HPVA Grade AA.

2. Veneer Cut: Rift Cut.

3. Leaf Matching: Slip match veneer leafs, balance matched on width of door or match existing doors.

4. Color: To be determined.

2.05 VISION PANEL FRAME / TRIM

A. Metal Vision Panel Frames for Glazing: Anemostat FGS-75, prime painted steel ready for field finishing by Section 09 9000.

2.06 FABRICATION

A. Fabricate doors in accordance with ANSI / WDMA I.S.1A requirements.

B. Vertical Exposed Edge on Hardwood Veneer Doors - Solid Edge: White Oak Hardwood matching the hardwood veneer.

C. Bond edge banding to cores.

D. Bevel strike edge of door.

E. Coordinate size of door and edge clearances with frames specified in Section 08 1100 and hardware specified in Section 08 7100 so that field planing door edges for proper fit is not required.

F. Factory machine doors for finish hardware specified in Section 08 7100 in accordance with hardware requirements and dimensions. Do not machine for surface hardware.

G. Cut out openings for vision panel frames.

H. Door Undercuts: Provide undercuts to accommodate door hardware provided by Section 08 7100 and as required by applicable codes.

I. Factory fit doors for frame opening dimensions.

J. Provide edge clearances in accordance with WDMA.

2.07 FACTORY FINISH

A. Transparent Finish for Door Edge and Hardwood Veneer Face: Factory finish doors in accordance with ANSI / WDMA I.S. 1A Premium Grade:

1. Finish System: TR-6 Catalyzed Polyurethane, including reduced vinyl sealer wash coat (if required), wash coat, stain, vinyl sealer, sanding with 220 grit, first topcoat and second topcoat; satin finish. UV Curable Polyester or Urethane finish systems are also acceptable.

    a. Match color of wood trim specified in Section 06 2000.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 08 3100

ACCESS DOORS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Access Doors.

1.02 SCOPE OF WORK

A. Provide access doors in walls and ceilings wherever items requiring maintenance or code mandated access are installed concealed in the construction, such as for electrical junction boxes, plumbing shut-off valves, fire sprinkler drain valves, equipment, concealed mechanisms, door adjustment, and similar conditions.

1. Exact locations and sizes of access doors are not indicated on the drawings. Obtain specific locations and sizes for access doors from trades requiring access to concealed equipment.

2. Access doors shall be sized to allow easy maintenance access by average size person, and shall be large enough to allow maintenance and replacement functions to occur.

3. Where access doors must be used in fire-rated assemblies, provide fire - rated access doors matching fire rating of assembly in which it is installed.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. Underwriters Laboratories, Inc. (UL):

1. Building Materials Directory.

2. UL 10B – Standard for Fire Tests of Door Assemblies.

1.04 QUALITY ASSURANCE

A. Fire Resistance:

1. Provide access door units which have been tested in accordance with UL 10B, and are listed in Underwriters Laboratory, Inc. "Building Materials Directory" for fire rating indicated.

a. Attach UL label to each fire-rated access door.

2. For fire-rated ceiling access doors, provide door assembly from manufacturer whose products have been tested by independent testing agency and have been found acceptable for fire ratings indicated.

a. Provide testing agency label on each fire-rated access door.

1.05 DELIVERY, STORAGE AND HANDLING

A. Coordinate delivery of access doors with other work to avoid delays.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. The following manufacturers, provided they comply with requirements of this section, are acceptable:

1. J. L. Industries.

2. Karp Associates.

3. Larsens Manufacturing Company

4. Milcor / Lima Register.

5. Nystrom.

6. Williams Brother Corp.

2.02 MANUFACTURED UNITS

A. Access Door Assembly at Non-Rated Locations: Medium Security Access Doors.

1. Location: Wall or Ceiling.

2. Type: Flush door panel with concealed drywall frame.

3. Fire rating: Non-rated.

4. Frame: 12 gauge steel.

a. Provide Type 304 stainless steel at Toilet Rooms (except ceiling) and wet areas.

5. Door: 12 gauge steel flush panel.

a. Provide Type 304 stainless steel at Toilet Rooms (except ceiling) and wet areas.

6. Hinge: Continuous type hinge with stainless steel pin.

7. Finish: White Powder Coat.

a. Stainless Steel: No. 4 Brushed Satin Finish.

8. Size: As required for access, or as shown.

B. Access Door Assembly at Fire Rated Assemblies: Fire-Rated Security Access Doors.

1. Location: Wall or Ceiling.

2. Type: Flush door panel with concealed drywall frame.

3. Substrate: Frame wall / shaft wall.

4. Fire rating: Match fire rating of assembly that access door is mounted in.

5. Frame: 16 gauge steel.

a. Provide Type 304 stainless steel at Toilet Rooms (Except Ceiling) and wet areas.

6. Door: 14 gauge steel flush panel outer door and 20 gauge steel flush panel inner door, welded hollow metal construction.

a. Provide Type 304 stainless steel at Toilet Rooms (except ceiling) and wet areas.

7. Hinge: Continuous type hinge with stainless steel pin.

8. Finish: White Powder Coat.

a. Stainless Steel: No. 4 Brushed Satin Finish.

9. Size: As required for access, or as shown.

2.03 ACCESSORIES

A. Locking Devices: Provide lock assembly that will accommodate keyed cylinder provided by Section 08 7100.

2.04 FABRICATION

A. Access Doors and Frames:

1. General: Fabricate access door components of continuous welded construction, with welds ground smooth.

a. Fabricate units of continuous welded steel construction.

2. Frames:

a. Concealed frames in gypsum board construction: Fabricate frame with perforated flanges and gypsum board finishing trim.

3. Doors: Flush panel doors

a. Fabricate door panel from material and gauge indicated, with a smooth face, and with door edges installed square with door frame.

b. Fabricate fire-rated units with insulated flush doors, continuous piano hinge, and self-closing mechanism with interior side safety latch release in manufacturer's standard tested design for fire rating indicated.

B. Shop / Factory Finishing: Provide manufacturer's standard powder coat finish, unless noted otherwise.

1. Stainless Steel Units: No. 4 Brushed Satin Finish.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 08 3316

COILING COUNTER DOORS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Coiling Counter Door.

1.02 REGULATORY REQUIREMENTS

A. Provide products listed and labeled by UL or Warnock Hersey as suitable for the purpose specified and indicated.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Coiling doors specified herein are manufactured by Wayne Dalton and are the standard of quality and function required for this project. The following manufacturers that manufacturer coiling doors that can meet or exceed this standard of quality and function are acceptable:

1. Atlas.
2. Cookson.
3. Cornell.
4. Overhead Door.
5. Wayne Dalton (basis of design).

2.02 COILING GRILLES

A. Coiling Counter Grilles: Wayne Dalton Manual Door Model 500 with the following features:

1. Curtains: Flat faced, 2-inch, No. 17 slats fabricated of stainless steel 20 gauge.
    a. Alternate slats will be fitted with end locks to hold curtain in alignment.
    b. Bottom of curtain finished with an extruded, tubular, or single angle bottom bar fitted with a continuous vinyl bumper to protect counter top.

2. Guides: Extruded aluminum. Continuous strips of wool pile are inserted into guides to eliminate metal-to-metal contact and to provide dust-seal around curtain.

3. Brackets: Metal plates with permanently sealed ball bearings designed to enclose ends of coil and provide support for counterbalance pipe at each end. Plated fabricated of stainless steel 3/16-inch thick minimum.

4. Counterbalance: Curtain is coiled on a pipe of sufficient size to carry door load with a deflection not to exceed 0.033-inch per foot of door span and to be correctly balanced by helical springs, oil tempered torsion type. Cast iron barrel plugs are used to anchor springs to tension shaft and pipe.

5. Hood: Hood will enclose curtain coil and counterbalance mechanism and is fabricated of sheet metal, flanged at top for attachment to header and flanged at bottom to provided longitudinal stiffness.

    a. Stainless steel minimum 24-gauge.

6. Finish: Curtain, bottom bar, and hood to be finished with stainless steel #4 finish.

7. Manual Operation: Manual crank.

8. Locking:

    a. Curtain to be locked at each end of bottom bar by concealed slide bolts which engage in a developed slot in each guide.

    b. Provide cylinder lock at jambs or in center of bottom bar.

9. Mounting: Overhead Structure with gypsum wallboard over wood stud jambs.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 08 4113

ALUMINUM STOREFRONT AND ENTRANCES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Aluminum Framed Entrance and Storefront Systems.

B. Aluminum Entrance Doors.

C. Glazing Installation.

D. Interior and Exterior Sealants.

1.02 PERFORMANCE REQUIREMENTS

A. Installed Storefront System Performance Requirements:

1. Air Infiltration: Not exceeding 0.06 CFM per square foot of fixed area when tested at differential static pressure of 6.24 P.S.F. in accordance with ASTM E283.

2. Water Infiltration: No water penetration at 10 P.S.F. when tested in accordance with ASTM E331.

3. Structural Performance: When subjected to the maximum design wind load pressures as defined for this project location by the IBC and State / local building codes and confirmed by tests in accordance with ASTM E330, storefront system shall:

   a. Limit deflection of framing members to not more than 1/200 or full recovery flexure limit of glazing if less.

   b. Provide a 50% safety factor on fasteners attaching system to building structure.

4. Thermal Performance: Framing systems shall accommodate expansion and contraction movement due to surface temperature differentials of 180 degrees Fahrenheit without causing buckling, stress on glass, failure of joint seals, excessive stress on structural elements, reduction of performance, or other detrimental effects. Doors shall function normally within these temperature differentials.

5. Energy Performance Certification: Overall assembly (frame and glazing) shall be NFRC Certified.

   a. Thermal Transmittance Performance (Frame and Glazing):

1) U-Value:

a) Fixed Windows: Overall U-value not exceeding 0.38 when tested according to AAMA 1503.1; coordinate with Section 08 8000 and adjust glazing needed to meet the overall U-value.

b) Doors: Overall U-value not exceeding 0.46 when tested according to AAMA 1503.1; coordinate with Section 08 8000 and adjust glazing needed to meet the overall U-value.

2) Solar Heat Gain Coefficient: Overall solar heat gain of at least 0.40 for fixed glazing and 0.22 for operable doors; coordinate with Section 08 8000.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. Aluminum Association (AA).

C. American Architectural Manufacturer's Association (AAMA):

1. AAMA 1503.1 – Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.

D. Americans with Disabilities Act (ADA):

1. ADAAG – Americans with Disabilities Act Accessibility Guidelines.

E. American Society for Testing and Materials (ASTM):

1. ASTM B221 – Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes and Tubes.

2. ASTM B456 – Standard Specification for Electroplated Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.

3. ASTM B633 – Standard Specification for Electroplated Coatings of Zinc on Iron and Steel.

4. ASTM C509 – Standard Specification for Elastomeric Cellular Preformed Gasket and Sealing Material.

5. ASTM C864 – Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks and Spacers.

6. ASTM E283 – Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen.

7. ASTM E330 – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

8. ASTM E331 – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.

F. International Building Code (IBC).

G. International Code Council / American National Standards Institute (ICC / ANSI):

1. ICC / ANSI A117.1 - Accessible and Usable Facilities and Buildings.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of experience.

B. Installer Qualifications: Company specializing in the installation of products specified in this section on projects of similar scope and complexity, with not less than five years of documented experience.

1. Installer shall employ only skilled, journeyman workers to install the work of this section.

2. Provide list of at least 5 recently completed projects with addresses and contact phone numbers within 50 miles of this project upon request.

C. Regulatory Requirements:

1. Code Compliance: Comply with International Building Code.

2. Accessibility Compliance: Door hardware shall meet the requirements of ADAAG, and ICC / ANSI A117.1, Accessible and Usable Building and Facilities.

3. ADA Accessibility Tolerances: Comply with ADA tolerances shown on the Drawings.

1.05 DELIVERY, STORAGE AND HANDLING

A. Protect finished surfaces as necessary to prevent damage.

B. Do not use adhesive papers or sprayed coatings which become firmly bonded when exposed to sun.

C. Do not leave coating residue on any surfaces.

D. Replace damaged units.

1.06 WARRANTY

A. Contractor shall warranty installed storefront system and windows for a period of 5 years to be watertight and free of leaks, free from defective materials, defective workmanship, glass breakage due to defective design, and shall replace any components that fails or is found to be defective upon notification by the Owner. Warranty shall cover the following:

1. Complete watertight and airtight system installation within specified tolerances.

2. Completed installation will remain free from rattles, wind whistles and noise due to thermal movement and wind pressure.

3. System is structurally sound and free from distortion.

4. Glass and glazing gaskets will not break or "pop" from frames due to design, wind load pressure, expansion or contraction movement or structural loading.

5. Glazing sealants and gaskets will remain free from abnormal deterioration or dislocation due to sunlight, weather or oxidation.

B. Thermal Break Structural Integrity Warranty: Provide 10 Year manufacturer's warranty against failure resulting from longitudinal or transverse shrinkage, cracking or loss of adhesion or prescribed pressure on the glazed material.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2. Primers: VOC levels of primers used during construction shall not exceed 100 g/l VOC limit.

2.02 ALUMINUM FRAMED STOREFRONT SYSTEM

A. Manufacturer: Products by Kawneer are the basis of design and the standard of quality, function and performance required for this Project.

1. Kawneer (Basis of Design).

2. Other Manufacturers: The following other manufacturers may be acceptable, subject to their ability to meet or exceed this standard and provide products conforming to the requirements of the Drawings and Specification. It is the responsibility of the bidders / manufacturers to confirm that they can provide products that meet the requirements of this Project prior to bid; inclusion below does not necessarily constitute approval of these manufacturer's standard products.

3. Arcadia, Inc.

4. EFCO.

5. U.S. Aluminum.

6. Vistawall.

7. Wausau.

8. Substitutions: Refer to Section 01 6000 for substitution procedures and requirements.

B. Products:

1. Aluminum Framed Entrance and Storefront Systems: *Kawneer; Trifab VG 451T (2-inch x 4-1/2-inch) Thermal System*.

a. Provide center glazed system as shown on the Drawings.

C. General: Extruded aluminum framing system complete with all related connections and anchorages. Provide components required for a complete and functional installation conforming to manufacturer's published performance requirements.

D. Materials:

1. Extruded Aluminum: Alloy 6063-T5 conforming to ASTM B221.

2. Internal Reinforcing: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B456 for SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

3. Fasteners: Stainless steel, type recommended by storefront manufacturer for substrate conditions / materials.

4. Expansion Anchor Devices: Stainless steel, toothed-steel, drilled-in, expansion bolt anchors.

5. Shims: Hard plastic, horseshoe shaped, available in different thicknesses as required.

6. Glazing Gaskets: E.P.D.M. elastomeric extrusion conforming to ASTM C509 or ASTM C864; profile and hardness as required to maintain uniform pressure for watertight seal, black color.

7. Glazing: 1-inch sealed insulating glass units specified in Section 08 8000.

8. "Anti-Walk" Edge Blocking: "W" shaped EPDM blocks for use in keeping glazing material stationary under vibration or seismic loading.

9. Baffles (at weep holes): Type as recommended by system manufacturer and shown in published installation instructions.

10. Sealant:

    a. Internal (Within Storefront Framing) Sealant: DowSil *795 Silicon Sealant*.

    b. External (To Adjacent Construction) Sealant:

        1) Exterior (Primary) Sealant: DowSil; *795 Silicon Sealant*, match frame color.

        2) Interior (Secondary) Sealant: DowSil; *758 Silicon Sealant*.

        3) Provide primer, joint cleaner, joint backing and bond breaker as recommended by manufacturer.

E. Aluminum Storefront System: Extruded aluminum framing system complete with related connections and anchorages. Provide components required for a complete and functional installation conforming to manufacturer's published performance requirements:

1. Framing Members: Kawneer *Trifab VG 451T* (2-inch x 4-1/2-inch) Thermal system, provide framing members and accessories required for a complete and functional system that is leak free, in addition to the standard framing members provide the following special members:

    a. Subsill: Manufacturer's standard high performance flashing with end dams.

    b. Head Compensating Channel: Manufacturer's standard head compensating receptor.

    c. Jamb Filler: Provide continuous filler fabricated from rigid vinyl or thermally broken aluminum in one piece (no joints) installed at back side of jamb members to allow adequate depth for sealant and rod installation at storefront framing perimeter.

    d. Provide stops at door frames, with brush weather-stripping.

2.03 ALUMINUM ENTRANCE DOORS

A. Manufacturer / Product: Kawneer; *Series AA 425 Thermal Entrance Doors*.

1. Door Thickness: 2-1/4-inches.

2. Side Rails: 5-inches wide.

3. Custom Bottom Rail: 12-inches wide.

4. Top Rail: 5-inches wide.

5. Provide Kawneer *Panic Guard Astragal* on each pair of doors.

B. Hardware: Specified in Section 08 7100, installed by this section.

1. In addition to the hardware specified in Section 08 7100 provide the following:

a. Sill Sweep Strips: Concealed sill sweep.

b. Concrete Anchors for Threshold: Type 304 stainless steel sleeve anchors, 3-inch length minimum; Red Head *Dynabolt* or similar.

2.04 ACCESSORIES

A. Spray Foam Sealant (For Gap Filler): Spray polyurethane foam sealant in a canister; Dow *Great Stuff Pro Window and Door Insulating Foam Sealant.*

2.05 FABRICATION

A. Take accurate field measurements to verify required dimensions prior to fabrication.

B. Fabricate components in accordance with approved shop drawings and manufacturer's fabrication instructions.

1. Remove burrs and smooth edges.

2. Shop fabricate to greatest extent practicable to minimize field cutting, splicing and assembly.

3. Disassemble only to extent necessary for shipping and handling limitations.

C. Fabricate components true to detail and free from defects impairing appearance, strength or durability.

D. Fabricate components to allow for accurate and rigid fit of joints and corners. Match components carefully ensuring continuity of line and design. Ensure joints and connections will be flush and weathertight. Ensure slip joints make full, tight contact and are weathertight.

E. Maintain accurate relation of planes and angles, with hairline fit of contacting members.

F. Cut, reinforce, drill and tap doors and frames to receive door hardware specified herein and in Section 08 7100; use concealed fasteners wherever possible.

G. Reinforce components as required at anchorage and support points, at joints, and at attachment points for interfacing work.

H. Provide structural reinforcing within framing members where required to maintain rigidity and accommodate design loads.

I. Install end dams in sill and subsill members to contain water within sill and prevent any leaks into building interior.

J. Provide weep holes or slots, deflector plates, internal flashings, and sealants to accommodate internal weepage draining water to the exterior and prevent any leaks to building interior.

K. Provide tight fitting, injection molded, plastic water deflectors at intermediate horizontals.

L. Allow for adequate clearance around perimeter of system to enable proper installation and for thermal movement within system.

M. Separate dissimilar metals with protective coating or pre-formed separators to prevent contact and corrosion.

N. Doors: Fabricate with mechanical joints using internal reinforcing plates and shear blocks attached with fasteners and by welding.

2.06 FINISH

A. Colored Anodized Finish: Dark Bronze anodized coating, Architectural Class I Dark Bronze Coating, Color #40; conform to AA-M10C21A44 / AA-M45C22A44.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 08 4500

INSULATED TRANSLUCENT PANEL SKYLIGHT SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Insulated Translucent Panel Roof System.

1.02 MANUFACTURER DESIGN REQUIREMENTS

A. The design, engineering, manufacturing and installation of the custom sized insulated translucent panel systems. An assembly of panels, incorporated into a complete aluminum framed system that has been tested and warranted by the manufacturer as a single source system.

B. Anchors, brackets, and hardware attachments necessary to complete the specified structural assembly, weatherability and water-tightness performance requirements. Flashing up to but not penetrating adjoining work are also required as part of the system and shall be included.

C. Trained and factory authorized labor with supervision to complete the entire panel installation.

1.03 PERFORMANCE REQUIREMENTS

A. Installed Skylight System Performance Requirements:

1. Structural Performance Requirements:

a. Live Load: 30 PSF minimum.

b. Wind Uplift: 40 PSF minimum.

c. Downward Wind Load: 25 PSF minimum.

1.04 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Architectural Manufacturers Association (AAMA):

1. AAMA 501 – Methods of Test for Exterior Walls.

2. AAMA 501.2 – Quality Assurance and Diagnostic Water Leakage for Field Check of Installed Storefronts, Curtain Walls and Sloped Glazing Structures.

C. American Society for Testing and Materials (ASTM):

1. ASTM B221 – Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

2. ASTM D635 – Standard Test Method for Rate of Burning and / or Extent and Time of Burning of Plastics in a Horizontal Position.

3. ASTM D1003 – Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics.

4. ASTM D1929 – Standard Test Method for Determining Ignition Temperature of Plastics.

5. ASTM D2244 – Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.

6. ASTM D2843 – Standard Test Method for Density of Smoke from the Burning or Decomposition of Plastics.

7. ASTM D4364 – Standard Practice for Performing Outdoor Accelerated Weathering Tests of Plastics Using Concentrated Sunlight.

8. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

9. ASTM E330 – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

10. ASTM E331 – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.

11. ASTM E695 – Standard Test Method of Measuring Relative Resistance of Wall, Floor, and Roof Construction to Impact Loading.

12. ASTM E1886 – Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.

13. ASTM E1996 – Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.

D. International Code Council (ICC).

E. Occupational Safety and Health Administration (OSHA).

1.05 QUALITY ASSURANCE

A. The glazing panels must be evaluated and listed by recognized building code evaluation organization: International Council Evaluation Service Inc. (ICC-ES)

B. Materials and Products shall be manufactured by a company continuously and regularly employed in the manufacturing, engineering, and designing, stocking and building of translucent panels using the specified material and system for a period of at least ten (10) years. Manufacturers shall provide a list of at least ten (10) projects having been in place a minimum of ten (10) years, with similar size, scope, climate and type.

C. Erection shall be by a factory-approved installer who has been in the business of erecting similar material for at least five (5) consecutive years and can show evidence of satisfactory completion of projects of similar size, scope and type.

D. The manufacturer shall be responsible for the configuration and fabrication of the complete panel system, in accordance with the requirements of this specification.

1.06 PRODUCT HANDLING

A. Deliver panel system, components and materials in manufacturer's standard protective packaging.

B. Store Translucent panels on the long edge, several inches above the ground, blocked and under cover to prevent warping.

1.07 WARRANTY

A. Provide a single source translucent panel system manufacturer warranty against defective materials and fabrication. Submit manufacturer's written warranty agreeing to repair translucent panel system work, which fails in materials within three years from date of delivery.

B. Provide single source translucent panel manufacturer 10-year glazing panel warranty. Third party warranty for glazing panels shall not be acceptable. Glazing warranty to include:

1. Change in light transmission of no more than 6% per ASTM D1003.

2. No delamination of panel affecting appearance, performance or structural integrity of the panel or the system

3. Thermal Aging: The light transmission and the color shall not change after exposure to heat of 300°F for 25 minutes (when measured per ASTM D1003 and ASTM D2244 respectively).

C. Provide installer’s written warranty agreeing to repair installation workmanship, defects and leaks within three years from date of delivery.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2. Primers: VOC levels of primers used during construction shall not exceed 100 g/l VOC limit.

2.02 TRANSLUCENT ROOF SYSTEM (Roofs over unconditioned environments)

A. Manufacturer / Product: *Pentaglas 16 Toplite* Skylight *System*; CPI Daylighting, Inc.

1. Other manufacturers may bid this project provided they comply with the requirements of the specification and submit evidence of compliance with the performance criteria specified herein. This evidence must include proof of conformance and test reports as per section. Submit per the requirements of Section 01 6000.

B. Performance and Appearance:

1. Translucent Panel Performance:

a. Nano-Cell® Panel Technology – Longevity and Resistance to Buckling and Pressure.

b. Translucent Panels must be of Nano-Cell® technology (cell sizes less than 0.18-inch). Wide Cell technology (cell size exceeding 0.18-inch) shall not be acceptable.

c. The translucent panel shall include an integral extruded Nano-Cell® structural core. The panel's exterior skins shall be connected with supporting continuous ribs, perpendicular to the skins, at a spacing not to exceed 0.18-inch (truss-like construction). In addition, the space between the two exterior skins shall be divided by multiple parallel horizontal surfaces, at a spacing not to exceed 0.18-inch.

C. Appearance:

1. Single Panel assembly thickness shall be standard 0.63-inch with exposed interlocking U battens to the exterior (standing seam look from exterior)

2. Skylight Shape shall be ridge type.

3. Panel Color:

a. Exterior Face: “Ice White”.

b. Interior Face: “Ice White Matte”.

c. Frame: To be determined.

1) Finish Coating shall be a premium fluoropolymer coating with minimum of 70% *Kynar 500* or *Hylar 5000* base resin, factory-applied, oven baked and applied under controlled condition; 20-year warranty.

D. Translucent Panel Joint System:

1. Panel shall be extruded in one single formable length. Transverse connections are not acceptable.

2. The panels should be manufactured with grip-lock double tooth up stands that are integral to the unit. The up stands shall be 90 degrees to the panel face (standing seam dry glazed concept). Welding or gluing of up stands or standing seam is not acceptable.

3. The U battens shall have a grip-lock double tooth locking mechanism to ensure maximum uplift capability.

4. The metal retention clip shall be configured with a 0.4-inch wide top flange that extends continuously across the web from end to end and from side to side. To allow a safety factor, the clip must be tested to meet a wind uplift standard of 90 PSF per ASTM E330.

5. Water Penetration: No water penetration of the panel U joint connection length at test pressure of 6.24 PSF per ASTM E331.

6. Free movement of the panels shall be allowed to occur without damage to the weather tightness of the completed system.

E. Flammability:

1. The exterior and interior panels shall be an approved light transmitting panel with a CC1 fire rating classification per ASTM D635. Flame spread no greater than 25 per ASTM E84. Smoke density no greater than 75 per ASTM D2843 and a minimum self-ignition temperature of 1000 degrees F per ASTM D1929.

2. Interior flame spread classification of Class A per ASTM E84.

F. Impact Resistance - the panels shall pass the following tests:

1. SFBC – PA 201 – Impact resistance of 350 ft. lbs.

2. ASTM E695 – Impact loading per for 500 ft. lbs.

3. Impact resistance per ASTM E1886 and ASTM E1996 level D.

G. OSHA Life Safety Standards 29 CFR 1926.502 (i) (2) and 29 CFR 1910.23 (e) (8):

1. Panel assembly shall withstand a 300 lb. point load at 5-foot span per OSHA standard 29CFR 1910 23e8.

H. Weatherability:

1. The light transmission shall not decrease more than 6% as measured by ASTM D1003 over 10 years, or after exposure to temperature of 300 degrees F for 25 minutes (thermal aging performance standard).

2. The panel shall be tested by recognized laboratory for weathering evaluation per ASTM D4364 (EMMAQUA, UNBACKED), after exposure to minimum concentrated natural sunlight radiation of 56000 MJ / M (1540 MJ / M of UV, 200 - 385 N.M). The panel shall not change in color more than 4.0 units Delta E, 4.0 units Delta L and Delta B.

3. The panel shall not change color more than 4.0 units (DELTA-E by ASTM D2244) after 60 months outdoor weathering in Arizona determined by an average of at least two samples.

4. Thermal Aging: The interior and exterior faces shall not change color in excess of 0.75 Delta E by ASTM D2244 and shall not darken more than 0.3 units (Delta L by ASTM D2244) and shall not show cracking or crazing when exposed to 300 degrees F for 25 minutes.

5. The faces shall not become readily detached when exposed to temp of 300 degrees F and 0 degrees F for 25 minutes.

6. Panels shall consist of a polycarbonate resin with a permanent, co-extruded, ultra-violet protective layer. Post-applied coating or films of dissimilar materials are unacceptable. Fiberglass skins are unacceptable.

7. UV Maintenance: The system shall require no scheduled re-coating to maintain its performance or for UV protection.

8. Panel shall be factory sealed at the sill to restrict dirt ingress.

I. Metal Frame Structure

1. Design criteria shall be as noted on the Structural Drawing General Notes.

2. The framing is designed to be self-supporting between the support constructions. The deflection of the structural framing members in a direction normal to the plane of the glazing, when subjected to a uniform load deflection, shall not exceed L / 60 for the unsupported span.

3. Water Penetration testing of the Metal Frame Structure shall be conducted according to procedures in AAMA 501.2.

4. Water Penetration: The Metal Framed Skylight shall allow no water penetration at a minimum differential static pressure of 6.24 lbs. per sq. ft. per AAMA 501 Pressure Difference Recommendations. This shall be demonstrated by prior testing of a typical framing sample per ASTM E331 test standards.

J. Metal Materials:

1. Extruded Aluminum shall be ASTM B221; 6063-T6: 6063-T5 or 6005-T5.

2. Flashing:

a. 5005 H34 aluminum 0.04-inch minimum thickness

b. Sheet metal flashings / closures / claddings are to be furnished shop formed to profile - when lengths exceed 10 feet in nominal 10-foot lengths. Field trimming of the flashing and field forming the ends is necessary to suit as-built conditions. Sheet metal ends are to overlap at least 6-inches to 8-inches, set in a full bed of sealant and riveted if required.

3. Fasteners for aluminum framing to be stainless steel or cadmium plated steel, excluding the final fasteners to the building.

4. Exposed Aluminum Finish: TBD

a. Finish Coating shall be a premium fluoropolymer coating with minimum of 70% *Kynar 500* or *Hylar 5000* base resin, factory-applied, oven baked and applied under controlled condition; 20-year warranty.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 08 5113

ALUMINUM WINDOWS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Aluminum Windows.

B. Aluminum Windows with Integral Blinds.

C. Exterior and Interior Sealant.

1.02 PERFORMANCE REQUIREMENTS

A. Installed Aluminum Framed Window Performance Requirements:

1. Performance Grade Standard: Aluminum windows shall conform to AAMA / WDMA / CSA 101 / I.S.2 / A440 performance standards as follows:

   a. FW – AW PG140 for fixed windows.

   b. AP – AW PG125 for operable windows.

2. Air Infiltration: Not exceeding 0.06 CFM per square foot of fixed area when tested at differential static pressure of 6.24 P.S.F. in accordance with ASTM E283.

3. Water Infiltration: No water penetration at 15 P.S.F. when tested in accordance with ASTM E331.

4. Uniform Load Deflection Test:

   a. With ventilators closed and locked, test unit in accordance with ASTM E330 at a static air pressure difference of 95 P.S.F., positive and negative pressure.

   b. No member shall deflect over L / 175 of its span.

5. Uniform Load Structural Test:

   a. With ventilators closed and locked, test unit in accordance with ASTM E330 at a static air pressure difference of the wind loading shown on the Structural Drawings., both positive and negative.

   b. At conclusion of test there shall be no glass breakage, permanent damage to fasteners, or any other damage to the window.

6. Energy Performance Certification: Overall assembly (frame and glazing) shall be NFRC Certified.

a. Thermal Transmittance Performance (Frame and Glazing):

1) U-Value:

a) Fixed Windows: Overall U-value not exceeding 0.38 when tested according to AAMA 1503.1 and NFRC 100 and 200; coordinate with Section 08 8000 and adjust glazing needed to meet the overall U-value.

b) Operable Windows: Overall U-value not exceeding 0.40 when tested according to AAMA 1503.1 and NFRC 100 and 200; coordinate with Section 08 8000 and adjust glazing needed to meet the overall U-value.

2) Solar Heat Gain Coefficient: Overall solar heat gain of at least 0.40 (fixed glazing), coordinate with Section 08 8000.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. Aluminum Association (AA).

C. American Architectural Manufacturers Association (AAMA):

1. AAMA A611 – Voluntary Specification for Anodized Architectural Aluminum.

D. American Architectural Manufacturers Association / Window and Door Manufacturers Association / Canadian Standards Association (AAMA / WDMA / CSA):

1. AAMA / WDMA / CSA 101 / I.S.2 / A440 – Standard Specification for Windows, Doors, and Unit Skylights.

E. Americans with Disabilities Act (ADA):

1. ADAAG – Americans with Disabilities Act Accessibility Guidelines.

F. American Society for Testing and Materials (ASTM):

1. ASTM E283 – Standard Test Method for Determining Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors under Specified Pressure Differences across the Specimen.

2. ASTM E330 – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

3. ASTM E331 – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.

G. International Code Council / American National Standards Institute (ICC / ANSI):

1. ICC / ANSI A117.1 - Accessible and Usable Facilities and Buildings.

H. National Fenestration Rating Council (NFRC).

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of experience.

B. Installer Qualifications: Company specializing in the installation of products specified in this section on projects of similar scope and complexity, with not less than five years of documented experience. Upon request, provided listing of all projects completed within the last two years along names and contact information of general contractors and building owner representative for each project.

C. Regulatory Requirements:

1. Accessibility Compliance: Window hardware shall meet the requirements of ADAAG, and ICC / ANSI A117.1, Accessible and Usable Building and Facilities.

2. ADA Accessibility Tolerances: Comply with ADA tolerances shown on the Drawings.

1.05 MOCK-UPS

A. Provide Mock-up as specified in Section 07 2700.

1.06 PRE-INSTALLATION CONFERENCE

A. Participate in the Pre-Installation Conference as specified in Section 07 2700.

1.07 DELIVERY, STORAGE AND PROTECTION

A. Protect finished surfaces with wrapping paper or strippable coating during installation. Do not use adhesive papers or sprayed coatings that bond to substrate when exposed to sunlight or weather.

1.08 WARRANTY

A. Contractor shall warranty installed aluminum windows for a period of 5 years to be watertight and airtight within specified performance standards, free of leaks, free from defective materials, defective workmanship, glass breakage due to defective design, and shall replace any components that fails or is found to be defective upon notification by the Owner.

B. Thermal Break Structural Integrity Warranty: Provide 10 Year manufacturer's warranty against failure resulting from longitudinal or transverse shrinkage, cracking or loss of adhesion or prescribed pressure on the glazed material.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2. Primers: VOC levels of primers used during construction shall not exceed 100 g/l VOC limit.

2.02 ALUMINUM WINDOWS

A. Manufacturer: Products by EFCO are the basis of design and the standard of quality, function and performance required for this Project.

1. EFCO (Basis of Design).

2. Other Manufacturers: The following other manufacturers may be acceptable, subject to their ability to meet or exceed this standard and provide products conforming to the requirements of the Drawings and Specification. It is the responsibility of the bidders / manufacturers to confirm that they can provide products that meet the requirements of this Project prior to bid; inclusion below does not necessarily constitute approval of these manufacturer's standard products.

a. Kawneer.

b. Wausau.

c. WINCO Windows.

d. Substitutions: Refer to Section 01 6000 for substitution procedures and requirements.

B. Product:

1. Aluminum Window: EFCO; *Series 325X XTherm Architectural Window*.

C. General: Provide factory assembled and glazed aluminum windows as follows:

1. Frame: Extruded aluminum using 6063-T6 alloy with a minimum wall thickness of 0.125-inches including the following:

a. Thermal Break Construction:

1) Exterior aluminum shall be separated from interior aluminum by a rigid, structural thermal barrier. For purposes of this specification, a structural thermal barrier is defined as a system that shall transfer shear during bending and, therefore, promote composite action between the exterior and interior extrusions.

2) The thermal barrier shall be thermal struts, consisting of glass reinforced polyamide nylon, mechanically crimped in raceways extruded in the exterior and interior extrusions.

3) Poured and debridged urethane thermal barriers shall not be permitted.

b. Frame Width: 3-5/16-inches.

c. Frame Depth: 3-1/4-inches.

d. Joinery: Fastened with stainless steel screws and sealed airtight and watertight.

e. Glazing Stops: Extruded aluminum matching frame with minimum wall thickness of 0.050-inch.

f. Fixed Windows without Integral Blinds:

1) Glazing Thickness: Frame shall accommodate 1-inch thermal glazing thickness as specified in Section 08 8000.

g. Operable Windows without Integral Blinds:

1) Glazing Thickness: Frame shall accommodate 1-inch thermal glazing thickness as specified in Section 08 8000 or thickness as required to meet the thermal performance requirements of the total window unit.

h. Windows with Integral Blinds:

1) Units shall be dual glazed with blinds and interior access panel consisting of:

a) Exterior Lite: Insulated glazing unit as specified in Section 08 8000.

b) Blinds: 1-inch aluminum blinds in a white finish.

I) The head and sill rails for shall be extruded aluminum

II) Tilting of blinds shall be performed without opening the interior panel using a nob on the interior of the frame.

c) Interior Lite: Laminated safety glass as specified in Section 08 8000.

i. Head Compensation Channel: Provide wherever deflection of structure will adversely affect the aluminum framed window system.

j. Subsill: Provide subsill assembly with weep holes; provide end dams sealed watertight.

2. Operating Hardware for Operable Windows: Awning Operation

a. Locking handles shall be cam type and manufactured from a white bronze alloy with a US25D brushed finish.

b. Operating hardware shall be 4-bar stainless steel arms or equal.

c. Sash Operation: Cast white bronze alloy with a US25D brushed finish push-pull handle with cam lock operation.

d. Limit Device: Concealed stop mechanism to prevent operable sash from opening more than 4-inches without special key.

e. Custodial Lock: Install custodial lock on each operable sash to prevent unauthorized opening without special key.

f. Screens at Operable Windows:

1) Screen frames shall be extruded.

2) Screen mounting holes in the window frame shall be factory drilled.

3) Screen mesh shall be aluminum or fiberglass.

3. Attachment: Aluminum attachment clips provided by manufacturer; provide stainless steel fasteners sized for secure installation to resist wind loading pressures.

4. Glazing: Factory glazed with insulating units specified in Section 08 8000, extruded vinyl glazing snap-in bead around the exterior edge.

5. Window Sizes: As indicated on Drawings.

D. Accessories:

1. Fasteners: Stainless steel screws.

2. Sealant:

a. Exterior (Primary) Sealant: DowSil *795 Silicon Sealant*, match frame color.

b. Interior (Secondary) Sealant: DowSil *758 Silicon Sealant*.

c. Provide primer, joint cleaner, joint backing and bond breaker as recommended by manufacturer.

2.03 FINISH

A. Colored Anodized Finish: Colored Anodized aluminum finish, Dark Bronze anodized; conform to AA-M10-C22-A44 and AAMA 611.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 08 5619

ALUMINUM TRANSACTION WINDOWS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Interior Aluminum Transaction Windows.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. Americans with Disabilities Act (ADA).

1. ADAAG – Accessibility Guidelines for Buildings and Facilities.

C. International Code Council (ICC):

1. ICC / ANSI A117.1 – Accessible and Usable Buildings and Facilities.

1.03 DELIVERY, STORAGE AND HANDLING

A. Deliver windows crated to provide protection during transit and job storage.

B. Inspect windows upon delivery for damage. Unless minor defects can be made to meet the Architect's specifications and satisfaction, damaged parts should be removed and replaced.

C. Store windows at building site under cover in dry location.

1.04 PROJECT CONDITIONS

A. Field measurements: Check opening by accurate field measurement before fabrication.

B. Coordinate fabrication schedule with construction progress to avoid delay of work.

PART 2 - PRODUCTS

2.01 ALUMINUM TRANSACTION WINDOWS

A. Manufacturer: Aluminum interior sliding service window manufactured by C.R. Laurence Co., Inc. is the basis of design and is the standard of quality and function required for this project.

1. Other manufacturers of aluminum transaction windows that can meet or exceed this standard of quality and function will be considered. Refer to Section 01 6000 for substitution procedures.

B. Manufacturer / Model: C.R. Laurence Co. *Daisy (XX)*

C. Configuration / Operation: Two operable sliding panels; locate the left hand sliding panel closest to clerk's side.

D. Frames: Aluminum frame modules shall be constructed of 6063-T5 extruded aluminum. Window rolls on top-hung ball bearing rollers. Catch locks included with all interior windows. Overall frame sizes are to be in accordance with the contract drawings.

E. Top Track: D6 overhead track.

F. Jambs: Aluminum channel jambs.

G. Guides: D35 spring-loaded guides mounted in counter.

H. Finish: Satin anodized clear aluminum.

I. Latch – Special Non-Standard Requirement: Provide bottom latch on clerk side leading edge for locking both sliding panels, latch shall comply with requirements of ADAAG and ICC / ANSI A117.1.

J. Glazing: Shop glaze as scheduled on the drawings and specified in Section 08 8000.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 08 7100

DOOR HARDWARE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Complete Finish Hardware for the Project in accordance with drawings, specifications and schedules.

B. Items not specifically mentioned but required to complete the work.

C. Wiring diagrams for electric hardware furnish under this section.

1.02 RELATED SECTIONS

A. Section 08 1100 Hollow Metal Doors and Frames.

B. Section 08 1400 Wood Doors.

C. Section 08 4113 Aluminum Storefront and Entrances.

D. Division 26 Electrical.

E. Division 28 Electronic Safety and Security.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American National Standards Institute (ANSI):

1. ANSI 156.18 – Materials and Finishes.

2. ANSI A117.1 – Specifications for making buildings and facilities usable by physically handicapped people.

C. Builders Hardware Manufacturers Association (BHMA).

D. Door and Hardware Institute (DHI).

E. National Fire Protection Association (NFPA):

1. NFPA 80 – Fire Doors and Windows.

2. NFPA 101 – Life Safety Code.

3. NFPA 105 – Smoke and Draft Control Door Assemblies.

4. NFPA 252 – Fire Tests of Door Assemblies.

1.04 QUALITY ASSURANCE

A. Qualifications:

1. Hardware supplier; a direct factory contract supplier who employs a certified architectural hardware consultant (AHC) who is:

a. available at reasonable times during course Work for project hardware consultation to Owner, Architect and Contractor.

b. responsible for detailing, scheduling and ordering of finish hardware.

B. Hardware:

1. Provide new, free of defects, blemishes and excessive play.

2. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer.

C. Exit Doors:

1. Make operable from inside with single motion without the use of a key or special knowledge or effort, except where noted otherwise.

D. Pre-Installation Meetings:

1. Initiate and conduct with supplier, installer and related trades, coordinate materials and techniques, and sequence complex hardware items and systems installation.

2. Convene at least one week prior to commencement of related work.

1.05 DELIVERY, STORAGE AND HANDLING

A. Delivery:

1. Coordinate delivery to appropriate locations (shop or field).

2. Secure delivery of permanent keys and cores to Owner’s representative.

B. Site Acceptance:

1. Deliver items individually packaged in manufacturers’ original containers, complete with proper fasteners and related pieces.

2. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.

C. Storage:

1. Provide locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, etc.

1.06 PROJECT CONDITIONS

A. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical as the same operation and quality as type specified, subject to Architect's approval.

1.07 SEQUENCING:

A. Furnish manufacturer templates to door and frame fabricators.

B. Use hardware consultant to check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation.

1. Confirm that door manufacturers furnish necessary UBC-7-2 compliant seal packages.

1.08 WARRANTY

A. Furnish warranty as part of respective manufacturers' regular terms of sale.

B. Provide manufacturers' warranties as follows:

1. Closers: Thirty years mechanical.

2. Hinges: Life of Building.

3. Locksets 3 years, 1 year electrical.

4. Exit Devices 3 years mechanical, 1 year electrical

5. Other Hardware: One year.

1.09 COMMISSIONING:

A. Test door hardware operation with climate control system and stairwell pressurization system both at rest and while in full operation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Comply with list of acceptable and alternate manufacturers.

B. Submit for review products with equivalent function and features of scheduled products below:

	ITEM:	(ABRV) MANUFACTURER	ACCEPTABLE SUB:
a.	Hinges	(IVE) Ives	Stanley, Hager
b.	Continuous Hinges	(SEL) Select	None
c.	Electrified Hinges	(IVE) Ives	Stanley, Hager
d.	Locks	(SCH) Schlage	None
e.	Anti-Ligature Locks	(TOW) TownSteel	None
f.	Cores	(SCH) Schlage	None
g.	Closers	(LCN) LCN	None
h.	Kick Plates	(IVE) Ives	Trimco
i.	Wall Stops	(IVE) Ives	Trimco
j.	Overhead Stops	(GLY) Glynn-Johnson	ABH
k.	Thresholds	(ZER) Zero	Pemko, National Guard
l.	Seals & Bottoms	(ZER) Zero	Pemko, National Guard
m.	Exit Devices	(VON) Von Duprin	None
n.	Power Supply	(VON) Von Duprin	None
o.	Power Transfer	(VON) Von Duprin	None
p.	Mag Lock	(SCE) Schlage Electronics	None
q.	Mag Holders	(LCN) LCN	ABH, Rixson

C. Provide hardware items required to complete the work in accordance with these specifications and manufacturers' instructions.

1. Include items inadvertently omitted from this specification and note these items in submittal for review.

2. Where scheduled item is now obsolete, bid and furnish manufacturers updated item at no additional cost to the project.

2.02 HANGING MEANS

A. Conventional Hinges:

1. Hinge open widths minimum but of sufficient throw to permit maximum door swing.

2. Provide steel or stainless steel pins and ball bearings.

3. Three hinges per leaf to 7 foot, 6 inch height. Add one for each additional 30 inches in height, or any fraction thereof.

4. On doors over 36-inch in width, provide 5-inch hinges.

5. Pins: All hinges to have non removable pins (NRP).

6. Non-ferrous material exteriors and at doors subject to corrosive atmospheric conditions.

7. Shims and shimming instructions for proper door adjustment.

B. Continuous Hinges:

1. Types: As indicated in the hardware groups.

2. Rated heavy duty as tested to BHMA standard A156.26, Grade 1.

3. Sizing: Hinges are to be sized 1-inch less than the overall height of the door opening.

4. Screws: Tamper resistant, pin-head TORX.

2.03 LOCKING

A. Schlage L-series, ANSI/BHMA A156.13 Operational Grade 1, Heavy Duty.

1. Lever Design: 17 Lever with A-type Rose.

2. Backset 2 3/4-inches.

3. Handed, but field reversible without disassembling lock case.

4. Fire Ratings: All locksets & Latchsets shall be listed with Underwriters Laboratories for A label and lessor class doors.

5. Cylinders: Provide 6-pin full size interchangeable core (FSIC).

6. Cylinder Accessories: Provide collars, compression rings, blocking rings and cams as application dictates.

7. Strikes: Provide curved lip strikes with adequate protection to protect jamb trim. At pairs of doors with overlapping astragals, provide strikes that have straight lips that are flush with the face of the door.

8. Strike Boxes: Provide manufacturers' standard wrought or plastic boxes. Boxes provided as standard with the hollow metal frames are acceptable.

B. TownSteel Anti-Ligature Mortise Locks.

1. Provide 5-point ligature resistant "arch" trim.

2. Furnish manufacturer's standard mortise cylinders prepped to receive Schlage large format interchangeable cores (SLFIC).

3. Strikes: Provide curved lip strikes with adequate protection to protect jamb trim.

4. Screws: Tamper resistant, pin-head TORX at all exposed screws.

C. Function numbers as listed in sets.

D. Latches and Locks for Means of Egress Doors: Comply with NFPA 101. Doors shall not exceed 15 lbs to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation from the egress side.

2.04 EXIT DEVICES / PANIC HARDWARE

A. Von Duprin: 35 and 98 Series

1. Independent lab-tested 1,000,000 cycles.

2. Push-through touch pad design. No exposed touch bar fasteners, no exposed cavities when operated. Return stroke fluid dampeners and rubber bottoming dampeners, plus anti-rattle devices.

3. 3/4-inch throw deadlocking latchbolts.

4. Non-handed basic device design with center case interchangeable with all functions, no extra parts required to effect change of function.

5. Releasable with 32 lb. maximum pressure under 250 lb. load to the door.

6. Lever Trim: Type-L.

7. Fire-Labeled Devices: UL label indicating "Fire Exit Hardware". Vertical rod devices less bottom rod (LBR) unless otherwise scheduled.

2.05 CLOSERS

A. LCN: 4000 and 2210 Series Closers

1. Provide plates, brackets and special templating when needed for interface with particular header, door and wall conditions and neighboring hardware.

2. Spacer Blocks: Furnish spacer blocks and/or shoe supports where frame stop does not provide for adequate support for the parallel arm soffit shoe.

3. Thru-bolts at wood doors unless doors are provided with closer blocking.

4. Place closer inside building, stairs, and rooms.

5. Screws: Tamper resistant, pin-head TORX at all exposed screws.

2.06 OVERHEAD STOPS

A. Glynn-Johnson Series 100

1. Stainless steel.

2. Non-plastic mechanisms and finished metal end caps.

3. Field-changeable hold-open, friction and stop-only functions.

2.07 KICK, MOP AND ARMOR PLATES

A. Rockwood K1050

1. Install kick plates on the push side of the door. Install mop plates on the pull side of the door.

2. Mounting Screws:

a. At Hollow Metal Doors, provide stainless steel TEK screws

b. At Wood Doors, provide stainless steel full thread sheet metal screws.

3. Material: Plates shall be 0.050-inches thick stainless steel, beveled four edges (B4E), with a #4 satin finish.

4. Provide armor plates with UL-Label at plates exceeding 16-inches in height on fire doors.

5. Height:

a. Mop Plates: 6-inches high.

b. Kick Plates: 10-inches high.

c. Armor Plates: 34-inches high.

6. Width:

   a. 2-inches less door width at single doors without soffit mounted hardware, or edge guards.

   b. 1-inch less door width at pairs of doors without mullions or astragals.

   c. At single doors with soffit mounted hardware, or pairs of doors with mullions or astragals, size as required to provide a 1/4-inch clearance at sides of doors, avoiding interference with edge trim, seals, finger guards, vertical bottom rods, surface bolts, kick- down holders, or other soffit or door mounted hardware.

   d. At doors with edge guards, size the width of kick plates so that there is a 1/4-inch reveal between the stop and the kick plate at the strike jamb, after tucking the kick plate into the edge guard on the hinge side.

7. Screws: Tamper resistant, pin-head TORX at all exposed screws.

8. Adjust width of kick, mop and armor plates to avoid interference with hardware, including but not limited to vertical rods, surface bolts, kick-down or plunger holders, etc.

2.08 DOOR STOPS

A. Provide stops to protect walls, casework or other hardware.

1. Unless otherwise noted in Hardware Sets, provide wall type with appropriate fasteners.

2. Where wall type cannot be used, provide floor type.

3. If neither can be used, provide overhead type.

2.09 THRESHOLDS, DOOR BOTTOMS AND SEALS

A. Zero International Thresholds

1. Anchors for thresholds: Provide #10 X 1-1/4” FPHSMS screws & plastic shields (#221).

2. Coordinate threshold type with floor conditions.

B. Door Bottoms and Seals

1. Fasteners where required: Screws: Tamper resistant, pin-head TORX at all exposed screws.

2. Provide anti-ligature feature for all seals.

2.10 OTHER HARDWARE

A. Fasteners:

1. All fasteners in Patient Areas shall be tamper resitant.

2. For typical exposed screws, use Phillips or Robertson drive.

3. For high security areas, use pinned TORX drive.

4. For flat head sleeve anchors (FHSL), allow slotted drive.

5. For sheet metal and wood screws, use full-thread.

6. For sleeve nuts, use full length to prevent door compression.

B. All wire, junction boxes, conduit and the like shall be furnished and installed by the Division 26 contractor. The hardware supplier shall furnish complete elevation and point to point wiring diagrams to the Division 26 contractor, which shall include the number and size of required conductors. Installation of and connections to access control systems specified elsewhere are not included in this section.

C. Key Box:

1. Furnish (4) each Knox series 3200 recessed mount.

2. Location as directed by Architect and AHJ.

D. Key Cabinet:

1. Furnish (2) each Telkee model TCA-334-S, wall mount.

2. Include manufacture’s standard key control supplies and equipment.

E. Cylinders / cores for products supplied by others

1. If / as required, provide appropriate cylinders and cores for access panels, cabinet locks, key switches, fire extinguisher cabinets, and similar items.

2.11 FINISH

A. Door Hardware:

1. Finishes in general to be Dull Chrome (626), Stainless Steel (630) Clear Anodized Aluminum (628), Sprayed Aluminum (689)

2. See hardware groups for scheduled finish.

2.12 KEYING REQUIREMENTS

A. Manufacturers:

1. Schlage

B. Cylinders:

1. Manufacturer's standard Interchangeable core type, constructed from brass or bronze, stainless steel, or nickel silver.

2. Number of Pins: Six.

3. Mortise Type: Threaded cylinders with required cam and trim ring(s).

4. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.

C. Permanent Cores: Manufacturer's standard; finish face to match lockset; interchangeable cores.

D. Construction Cores: Provide construction cores that are replaceable by permanent cores.

1. The construction cores shall remain property of the hardware distributor and shall be returned by the General Contractor upon installation of the permanent cores.

E. Key System: Match Owner’s existing Schlage interchangeable core system throughout. Owner will coordinate the keying.

F. Keys: Provide nickel-silver keys permanently inscribed with a visual key control number and "DO NOT DUPLICATE" notation. Furnish keys in the following quantities:

1. Cylinder Change Keys: Two.

2. Master Keys: Six.

3. Grand Master Keys: Two.

4. Temporary construction keys: Ten.

5. Construction control keys: Two.

2.13 FINISH HARDWARE FUNCTIONAL DESCRIPTIONS

A. See door schedule on Drawings for Hardware Sequence of Operations and Access Control.

B. Doors in patient areas shall be provided with heavy duty anti-ligature hardware including anti-ligature mortise locks. Closers in patient areas shall be concealed anti-ligature closures.

C. Provide all power transfers, power supplies and hardware for complete electrified door functionality. Coordinate access control work with fire alarm and security systems.

D. Exterior doors shall be provided with weather gasketing, thresholds and kickplates.

E. All doors shall be fully functional, meeting the Owner's desired functions and they shall be code compliant.

F. In patient areas, floor door stops are not allowed. Anti-ligature overhead stops are allowed anti-ligature or a wall stop shall be provided. Contractor to determine what to use for each door with input from the Owner.

G. Patient egress doors with electrified door locks shall include magnetic door locks with integral functionality such that latch bolt retraction unlocks both the lever and magnetic lock.

H. Provide kick plates on push side of all doors except office doors or storefront doors.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 08 8000

GLASS AND GLAZING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Clear Flat Glass.

B. Fire-Rated Glass.

C. Glazing Accessories.

D. Insulating Glass Units.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American National Standards Institute (ANSI):

1. ANSI Z97.1 – American National Standard for Safety Glazing Materials Used in Buildings – Safety Performance Specifications and Methods of Test.

C. American Society for Testing and Materials (ASTM):

1. ASTM C864 – Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.

2. ASTM C1036 – Standard Specification for Flat Glass.

3. ASTM C1048 – Standard Specification for Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass.

4. ASTM C1172 – Standard Specification for Laminated Architectural Flat Glass.

5. ASTM C1376 – Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass.

6. ASTM E2190 – Standard Specification for Insulating Glass Unit Performance and Evaluation.

D. Consumer Product Safety Commission (CPSC):

1. CPSC 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.

E. Underwriters Laboratory, Inc. (UL).

1.03 PERFORMANCE REQUIREMENTS

A. Glass Thickness: Except where glass thickness is noted, select thickness of exterior glass to withstand dead loads and positive and negative live loads acting normal to plane of glass at design pressures calculated in accordance with requirements in the International Building Code and State / local codes.

1. Limit glass deflection to 1/200 or flexure limit of glass, whichever is less, with full recovery of glazing materials.

1.04 QUALITY ASSURANCE

A. Perform Work in accordance with "Glazing Manual" and "Sealant Manual" for glazing installation methods.

B. Fabricator, Sealed Insulating Glass Units: Minimum of five years of documented experience producing sealed insulating glass units specified in this section.

C. Installer Qualifications: Company specializing in the installation of products specified in this section on projects of similar scope and complexity, with not less than five years of documented experience. Upon request, provided listing of projects completed within the last 2 years along names and contact information of general contractors and building owner representative for each project.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Do not install glazing when ambient temperature is less than 50 degrees F.

B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.06 WARRANTY

A. Sealed Insulating Glass Units: Shall be warranted for a period of ten (10) years against seal failure, interpane dusting or misting, and shall include removal of failed unit and replacement with new unit.

B. Mirror Safety Glass: Silver mirror backing shall be warranted for a period of ten (10) years against visible deterioration or failure

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2. Primers: VOC levels of primers used during construction shall not exceed 100 g/l VOC limit.

2.02 CLEAR FLAT GLASS MATERIALS

A. Clear Uncoated Heat Tempered Safety Glass: Fully heat tempered with horizontal tempering.

1. Clear tempered float glass complying with ASTM C1048, Type 1 (transparent flat), Class 1 (clear), Quality q3 (glazing select), Kind HT.

2. Fully heat temper glass to comply with CPSC 16 CFR 1201 and ANSI Z97.1 impact safety standards.

3. Permanently etch one corner of each piece of tempered glazing indicating compliance with ANSI Z97.1, locate etch mark so it is visible after installation.

B. Clear Low-Emissivity Coated Heat Tempered Safety Glass:

1. Low-Emissivity Manufacturer / Product:

a. Cardinal Glass Industries; *LoĒ³-366*.

b. Vitro Architectural Glass; *Solarban 60 Clear*.

c. Guardian; *SN 68.*

d. Viracon; *VE 1-2M.*

2. Clear tempered float glass complying with ASTM C1048, Type 1 (transparent flat), Class 1 (clear), Quality Q3 (glazing select), Kind HT; with pyrolytic coating meeting the requirements of ASTM C1376.

3. Fully heat temper glass to comply with CPSC 16 CFR 1201 and ANSI Z97.1 impact safety standards.

4. Permanently etch one corner of each piece of tempered glazing indicating compliance with ANSI Z97.1, locate etch mark so it is visible after installation.

C. Clear Uncoated Laminated Glass:

1. Laminate 2 panes of clear annealed float glass with 0.030-inch thick polyvinyl-butyral (PVB) interlayer complying with ASTM C1172.

2. Permanently etch one corner of each piece of tempered glazing indicating compliance with ANSI Z97.1, locate etch mark so it is visible after installation.

2.03 FIRE-RATED GLASS MATERIALS

A. Clear Fire-Rated Safety Ceramic Glass:

1. Manufacturer / Product: TGP; *FireLite Plus.*

2. Thickness: 5/16-inch.

3. Fire Rating: 20 minute and 45 minute; UL tested and listed.

4. Impact Safety Resistance: Comply with ANSI Z97.1 and CPSC 16 CFR 1201 Category II.

5. Permanently etch one corner of each piece of glass indicating fire rating and *FireLite* logo; locate etch mark so it is visible after installation.

B. Clear Fire-Rated Safety Laminated Glass:

1. Manufacturer / Product: Pilkington; *Pyrostop.*

2. Thickness: 3/4-inch.

3. Fire Rating: 45 minute; UL tested and listed.

4. Impact Safety Resistance: Comply with ANSI Z97.1 and CPSC 16 CFR 1201 Category 1 and II.

5. Permanently etch one corner of each piece of glass indicating fire rating and *Pyrostop* logo; locate etch mark so it is visible after installation.

2.04 GLAZING ACCESSORIES

A. Mirror Mounting Bracket: Concealed stainless steel or chrome plated steel mounting bracket made specifically for mounting mirrors on walls; provide size and configuration as required by size of mirror and mounting conditions.

B. Glazing Compound: Silicone sealant single component; chemical curing; capable of water immersion without loss of properties; non-bleeding, non-staining; cured Shore A hardness of 15 to 25; color as selected.

C. Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness, ASTM C864 Option I. Length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.

D. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness, ASTM C864 Option I. Minimum 3 inch long x one half the height of the glazing stop x thickness to suit application, self-adhesive on one face.

E. Glazing Tape: Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2 percent, designed for compression of 25 percent to effect an air barrier and vapor retarder seal.

1. Fire Rated Glazing: Glazing tape shall conform to fire listing requirements of the fire rated glazing.

F. Glazing Gaskets for Aluminum Storefront and Entrances: Specified in Section 08 4113.

2.05 FABRICATION

A. Heat-Tempered Glass:

1. Cut float glass materials to indicated sizes and provide cut-outs and holes, if indicated, before heat strengthening.

2. Fully temper float glass materials in accordance with ASTM C1048, Kind FT.

3. Comply with CPSC 16 CFR 1201 and ANSI Z97.1.

4. Permanently etch one corner of each piece of tempered glazing indicating compliance with ANSI Z97.1, locate etch mark so it is visible after installation.

B. Low-Emissivity Coated Glass: Fabricate using methods and equipment recommended by manufacturer; protect coating from damage.

C. Safety Laminated Glass: Fabricate using methods and equipment recommended by manufacturer.

D. Fire Rated Safety Ceramic Glass: Fabricate using methods and equipment recommended by manufacturer.

E. Fire Rated Safety Laminated Glass: Fabricate using methods and equipment recommended by manufacturer.

2.06 FABRICATION – INSULATING GLASS UNITS

A. Sealed Insulating Glass Units:

1. Fabricate units in accordance with ASTM E2190 with components and performance characteristics specified in Schedule paragraph at the end of this section.

2. Components:

   a. Glass Type and Heat Treatment: As specified in Schedule paragraph at the end of Part 3.

   b. Air Space: Hermetically sealed, dehydrated air filled.

   c. Performance Characteristics: As specified in Schedule paragraph at the end of this section.

3. Provide unit edge seals meeting requirements of ASTM E2190, with aluminum spacers having mitered corners, and silicone sealant for glass-to-spacer seals.

2.07 GLAZING TYPE SCHEDULE

A. Refer to Section 08 4113 and Section 08 5113 for total aluminum storefront and window assembly thermal performance requirements. Adjust insulating glass configuration as needed to meet those requirements while maintaining basic design intent and performance shown herein.

B. **Exterior Aluminum Storefront / Windows:** 1-inch insulating glass unit with Clear Low-Emissivity Coated Heat Tempered Safety Glass exterior pane (with Low-E coating on the number 2 surface) and Clear Uncoated Heat Tempered Safety Glass interior pane. Center of glass values shall be as follows:

   1. Visible Light Transmittance: 70% or better.

   2. Air Space: 100% Argon.

   3. Refer to Section 08 4113 and Section 08 5113 for total unit thermal performance requirements.

   4. Note 1: A triple pane unit maybe required at operable aluminum window units to meet the U-Value requirement in Section 08 5113.

C. **Exterior Aluminum Storefront / Windows in Patient Area:** 1-inch insulating glass unit with Clear Low-Emissivity Coated Heat Tempered Safety Glass exterior pane (with Low-E coating on the number 2 surface) and Clear Uncoated Laminated Safety Glass interior pane. Center of glass values shall be as follows:

   1. Visible Light Transmittance: 70% or better.

   2. Air Space: 100% Argon.

   3. Refer to Section 08 4113 and Section 08 5113 for total unit thermal performance requirements.

   4. Note 1: A triple pane unit maybe required at operable aluminum window units to meet the U-Value requirement in Section 08 5113.

5. Note 2: At patient windows with integral blinds, include an inboard laminated safety glass pane at the access sash.

D. **Interior Safety Glass:** Single pane of 1/4-inch thick Clear Heat Tempered Safety Glass.

E. **Interior Laminated Safety Glass in Patient Areas:** Single pane of 1/2-inch thick Clear Laminated Safety Glass.

F. **Interior Fire Rated Glass:** Single pane of 5/16-inch thick 20 minute and / or 45 Minute Fire Rated Safety Ceramic Glass.

G. **Interior Fire Rated Glass in Patient Areas:** Single pane of 3/4-inch thick 45 minute Fire Rated Safety Laminated Glass.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 08 9100

EXTERIOR WALL LOUVERS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Exterior Wall Louvers.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Architectural Manufacturers Associations (AAMA):

1. AAMA 611 – Voluntary Specification for Anodized Architectural Aluminum.

2. AAMA 2605 – Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.

C. Air Movement and Control Association International, Inc. (AMCA).

D. American Society for Testing and Materials (ASTM):

1. ASTM B221 – Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.

1.03 MOCK-UPS

A. Provide Mock-up as specified in Section 07 2700.

1.04 PRE-INSTALLATION CONFERENCE

A. Participate in the Pre-Installation Conference as specified in Section 07 2700.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2.02 EXTERIOR WALL LOUVERS

A. Manufacturer / Product: Ruskin *ELF6375DX Drainable Stationary Louver* is the basis of design and standard for quality, performance and function. The following manufacturers are acceptable subject to their ability to provide a louver with construction and performance characteristics equal to or exceeding the Ruskin louver specified:

1. Airolite.

2. American Warming and Ventilating.

3. Construction Specialties, Inc.

4. Greenheck.

5. Ruskin *ELF6375DX* (specified, basis of design).

B. Materials

1. Extruded Aluminum: Conform to ASTM B221.

2. Bird Screen: 3/4-inch x 0.051-inch expanded, flattened aluminum screen in a removable frame.

3. Accessories:

a. Screens: Frame of same material as louver, with reinforced corners; removable, screw attached; installed on inside face of louver frame.

b. Frame: Standard channel frame.

c. Mounting Clip Angles: Extruded aluminum clip angles on backside of louver for concealed mounting on interior side of louver to wall framing.

d. Fasteners and Anchors: Galvanized steel appropriate for conditions.

e. Sealant: Specified in Section 07 9000.

C. Fabrication:

1. Prior to fabrication, coordinate louver sizes to conform with mechanical requirements for free area, velocity, static pressure drop and duct size requirements; louver shall not exceed free area velocity beyond point of water penetration.

2. Intermediate support mullions shall not interrupt blade exterior appearance.

3. Blank off Panel: Any louver area not connected to ductwork or an outside air plenum shall be blanked off with insulated sheet metal blank off panel.

   a. Insulation: Extruded polystyrene; R-18 minimum.

4. Fabricate louver in conformance with AAMA 611 and AMCA certification requirements.

5. Factory Finish: Factory painted with 70% Kynar 500 or Hylar 5000 Fluoropolymer PVDF2 paint coating in accordance with AAMA 2605, custom color.

   a. Color: Refer to Drawings.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 09 2226

SUSPENDED GWB CEILING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Suspended Grid-Supported GWB Ceilings.

1.02 PERFORMANCE REQUIREMENTS

A. Provide suspended GWB ceiling system conforming to the following performance requirements:

1. Materials, Design and Installation: Conform to the applicable requirements of following reference standards:

a. International Building Code (IBC).

b. ASCE Chapter 13 for Seismic Design Requirements for Non-structural Components.

c. ASTM C635.

d. ASTM C636.

e. ASTM E580.

f. CISCA.

g. NWCB Technical Bulletin No. 401.

h. Suspended Ceiling System manufacturer's installation instructions and requirements for the specific products specified in this section.

2. Work of Other Trades: Coordinate with and accommodate the work of other trades wherever conflicts exist with the suspended GWB ceiling system.

a. Review work of other trades in advance of installation and resolve conflicts prior to fabrication and installation.

b. Provide additional support components as required to allow suspended ceiling system to be installed around work of other trades.

c. Provide additional hangar wire and anchors to building structure as required to provide support for work of other trades, including any lighting or mechanical components, which are intended to be supported on, or interface with, the suspended ceiling system in conformance with requirements of referenced standards.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society of Civil Engineers (ASCE).

C. American Society for Testing and Materials (ASTM):

1. ASTM A641 – Standard Specification for Zinc–Coated (Galvanized) Carbon Steel Wire.

2. ASTM C635 – Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.

3. ASTM C636 – Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.

4. ASTM E580 – Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions.

D. Ceilings and Interior Systems Construction Association (CISCA):

1. Guidelines for Seismic Restraint for Direct-Hung Suspended Ceilings Assemblies (Seismic Zones 3 and 4).

E. International Building Code (IBC).

F. Northwest Wall and Ceiling Bureau (NWCB):

1. NWCB Technical Bulletin No. 401 – Suspension Systems for Acoustical Lay-In Ceilings.

1.04 QUALITY ASSURANCE

A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with a minimum five years of documented experience.

B. Installer Qualifications: Experienced in performing work of this section with a minimum five years of documented experience in the installation of work similar to that required for this project.

1.05 PROJECT CONDITIONS

A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

PART 2 - PRODUCTS

2.01 SUSPENSION SYSTEM

A. Manufacturer / Product: Subject to their ability to provide products conforming with the requirements of this section and shown on the Drawings, the following manufacturers may provide products:

1. Armstrong; *Drywall / Stucco / Plaster Grid System.*

2. Chicago Metallic Corp.; *Suspended Drywall Furring System Series 640-C*.

3. USG; *Drywall Suspension System.*

B. Suspension System - General: ASTM C635; die cut and interlocking components, with stabilizer bars, clips, splices, and perimeter moldings as required for a complete and functional system.

1. Structural Classification: Heavy Duty.

C. Concealed Steel Suspension System: Commercial quality cold rolled steel, hot dipped galvanized consisting of main beams (furring runners), cross runners and perimeter channels.

1. Provide cross runners at 16 inches on center maximum.

2. Hanger Wire: Zinc-coated (galvanized) carbon steel wire, ASTM A641, soft temper, with Class 1 coating, minimum 12 gauge (0.106 inch diameter).

D. Accessories:

1. Trapeze Bars: Provide back to back 1-1/4-inch cold-rolled steel channels or Unistrut trapeze support channels supported from structural members to span below non-structural work by other trades that prevents installation of support wires plumb, do not support ceiling from non-structural items.

a. Gauge, size and configuration of cold-rolled steel channels or Unistrut channel shall be as required to limit deflection to less than L / 360 when with 250 pound load on each hanger.

2. Hanger Wire Support Anchors for Attachment to Structure: Conform to Performance Requirements specified herein. Select from the following methods as appropriate for conditions / construction:

a. Steel Structure: Powder actuated pin type fasteners with ICC-ES approval for seismic applications; manufactured by Hilti, Ramset or equal.

b. Wood Structure: Carbon steel lag eye bolt, 1/4-inch diameter, 3-inch minimum length.

E. Gypsum Wallboard (GWB): Specified in Section 09 2900.

PART 3 - EXECUTION

END OF SECTION

SECTION 09 2423

CEMENT STUCCO

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Rigid Foam Wall Insulation behind Cement Stucco.

B. Exterior Cement Stucco over Wood Framed Walls.

C. EIFS Accent Trims on Cement Stucco.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM C91 – Standard Specification for Masonry Cement.

2. ASTM C150 – Standard Specification for Portland Cement.

3. ASTM C206 – Standard Specification for Finishing Hydrated Lime.

4. ASTM C260 – Standard Specification for Air Entraining Admixtures for Concrete.

5. ASTM C494 – Standard Specification for Chemical Admixtures for Concrete.

6. ASTM C518 – Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

7. ASTM C578 – Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.

8. ASTM C841 – Standard Specification for Installation of Interior Lathing and Furring.

9. ASTM C897 – Standard Specification for Aggregate for Job Mixed Portland Cement Plasters.

10. ASTM C926 – Standard Specification for Application of Portland Cement Based Plaster.

11. ASTM C1002 – Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

12. ASTM C1116 – Standard Specification for Fiber Reinforced Concrete.

13. ASTM D578 – Standard Specification for Glass Fiber Strands.

14. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

15. ASTM F1667 – Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.

C. Northwest Wall and Ceiling Bureau (NWCB).

1.03 QUALITY ASSURANCE

A. Perform Work in accordance with ASTM C926, Portland Cement Plaster (Stucco) Manual and Stucco Resource Guide, where conflicts occur follow the recommendations of the Stucco Resource Guide.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum five years of experience.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Do not apply plaster when substrate or ambient air temperature is under 50 degrees F or over 80 degrees F.

B. Maintain minimum ambient temperature of 50 degrees F during installation of plaster and until cured.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2. Primers: VOC levels of primers used during construction shall not exceed 100 g/l VOC limit.

2.02 BOARD INSULATION MATERIALS

A. Rigid Foam Wall Insulation: Extruded Polystyrene Board Insulation, ASTM C578, Type IV; extruded cellular type polystyrene board with either natural skin or cut cell surfaces; with the following characteristics:

1. Board Edges (Contractor's Option): Square or Tongue and Groove.

2. Compressive Resistance: 20 psi

3. Water Absorption, maximum: 0.3 percent, volume.

4. Surface Burning Characteristics: Flame spread/smoke developed of 5/165 in accordance with ASTM E84.

5. Thermal Value Test Standard: Stabilized R-values @ 75°F mean temperature determined in accordance with ASTM C518.

6. Thickness: As indicated on Drawings.

B. Spray Foam Sealant (For Gap Filler): Spray polyurethane foam sealant in a canister; Dow *Enerfoam* or Dow *Great Stuff Pro.*

C. Adhesive: Low VOC adhesive recommended by manufacturer for application.

2.03 DRAINAGE MESH, LATHING, AND TRIM MATERIALS

A. Drainage Mesh: Stuc-O-Flex International *WaterWay Plus Rainscreen Drainage Mat;* nominal 7/16-inch thick extruded polymer matrix of tangled monofilaments heat laminated to filter fabric exterior face and weather resistive barrier interior face.

B. Lath: Self-furring woven wire lath, 17 gauge, 1-1/2-inch openings, galvanized, conform to ASTM C841; with paper back conforming to Federal Specification UU-B-790a, Type 1, Style 2, Grade D, with 60 minute paper water resistance.

C. Trim Accessories: Fabricate from 99% pure zinc alloy material to standard plaster trim configuration and as shown on the Drawings:

1. Casing Bead: Square-nosed, 7/8-inch depth, 3-inch flange width of expanded metal, *X-66 Casing Bead* manufactured by Amico or similar.

2. Foundation Weep Screed: 7/8-inch depth, 3-1/2-inch nailing flange, with weep holes; *Foundation Weep Screed No. 7* manufactured by Amico or similar.

3. Outside Corners: Expanded metal flanges; 3-1/4-inch wide flange width, *X-2 Corner Bead* manufactured by Amico or similar.

4. Expansion Control Joints: 7/8-inch depth, 4-inch overall width, with expanded mesh flanges, *Amico Griplock "J" Expansion/Control Joint* manufactured by Amico or similar.

5. Tie Wire: Hot dipped galvanized steel wire.

D. Fasteners (Contractor's Option):

1. Screws: Hot dipped galvanized steel screws conforming to ASTM C1002 and having a minimum shank diameter of 0.120-inches, 7/16-inch diameter pan wafer head and a sharp point; length as required for screw threads to engage wood stud 1-inch minimum.

2. Nails: Hot dipped galvanized steel nails conforming to ASTM F1667 and having a minimum shank diameter of 0.120-inches; length as required for nail to engage wood stud 1-1/4-inch minimum.

2.04 EIFS ACCENT TRIM MATERIALS

A. Rigid Foam Insulation for EIFS Accents: Extruded Polystyrene Board Insulation, ASTM C578, Type IV; extruded cellular type polystyrene board with either natural skin or cut cell surfaces; with the following characteristics:

1. Board Edges: Square.

2. Compressive Resistance: 20 psi

3. Water Absorption, maximum: 0.3 percent, volume.

4. Surface Burning Characteristics: Flame spread/smoke developed of 5/165 in accordance with ASTM E84.

5. Thermal Value Test Standard: Stabilized R-values @ 75°F mean temperature determined in accordance with ASTM C518.

6. Thickness and Profile: As indicated on Drawings.

B. Adhesive: Low VOC adhesive recommended by manufacturer for application.

C. Reinforcing Mesh: Balanced, alkali-resistant, open-weave, glass-fiber mesh; complying with ASTM D578, approved by the system manufacturer and conforming with the following:

1. Standard-Impact Reinforcing Mesh: Not less than 4.0 oz/sq. yd.

2. Heavy-Duty Reinforcing Mesh – Required on Accent Trim below 8 feet: Not less than 20 oz/sq. yd.

3. Strip Reinforcing Mesh: Not less than 3.75 oz/sq. yd.

4. Detail Reinforcing Mesh: Not less than 4.0 oz/sq. yd.

5. Corner Reinforcing Mesh: Not less than 7.2 oz/sq. yd.

2.05 PLASTER MATERIALS

A. Portland Cement: Conform to ASTM C150, Type I or Type I/II, grey.

B. Masonry Cement: Conform to ASTM C91, Type I or Type I/II.

C. Lime: Conform to ASTM C206, Type S.

D. Sand Aggregate:

1. Base Coats: Plaster sand conforming to ASTM C897; freshwater washed and free of deleterious materials.

E. Water: Clean, fresh, potable and free of mineral or organic matter which can affect plaster.

F. Plaster Mix Reinforcement: Polypropylene, nylon or alkali-resistant glass fibers, chopped to 1/2-inch nominal length, types specifically manufactured for stucco, conform to ASTM C1116.

G. Air Entrainment Admixtures: ASTM C260, approved by NWCB.

H. Water-Reducing Admixtures: Conform to ASTM C494, Type A; approved by NWCB.

2.06 PLASTER MIXES

A. Three-coat application, mixed and proportioned in accordance with ASTM C926 as follows, except finish coat shall be acrylic polymer finish coating:

1. Basecoat (Scratch and Brown Coats) - Mix No. 1 (and Optional Mix No. 2):

2. 1 part Portland cement (same for Optional Mix 2).

3. 1 part masonry cement (Optional Mix No. 2: 1/4 - 1/2 part lime).

4. 3-1/2 - 4-1/2 parts sand (Optional Mix No. 2: 3 - 4 parts sand).

5. Fiber Reinforcement: As recommended by manufacturer.

B. Mix only as much plaster as can be used prior to initial set.

C. Mix materials dry, to uniform color and consistency, before adding water.

D. Add air entrainment admixtures to all coats to provide 5-7 percent entrainment.

E. Protect mixtures from freezing, frost, contamination, and excessive evaporation.

F. Do not re-temper mixes after initial set has occurred.

2.07 ACRYLIC POLYMER FINISH COAT

A. Acrylic Polymer Finish Coat: Proprietary premixed water-based 100% acrylic polymer coating with integral color and texture and formulated with DPR (Dirt Pickup Resistance) chemistry.

1. Manufacturer / Product: Dryvit; *DS416 Sandblast DPR - Aggregate Textured 100% Acrylic-Based Standard DPR Finish*.

2. Texture: Medium sand finish; Dryvit *Sandblast*.

3. Primer: Water-based pigmented acrylic primer; Dryvit *Color Prime*.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 09 2900

GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Interior Gypsum Board (GWB).

B. Water Resistant Panels (WRGWB).

C. High Impact Gypsum Board (HIGWB).

D. Tile Backer Board (TBB).

E. Parapet Coverboard (Backside of Parapets Covered by Roofing).

F. Finishing Gypsum Board.

1.01 GYPSUM BOARD LEVEL OF FINISH

A. Finish gypsum board (whether exposed to view or not) in accordance with GA-214 to the following minimum level of finish:

1. Painted Finish Exposed to View (GWB and WRGWB): Level 5 Smooth, substitute a coat of Primer / Surfacer (15 – 20 wet mil thickness) in lieu of skim coating with joint compound; sand surface of Primer / Surfacer smooth.

a. Apply Primer / Surfacer to surfaces exposed to view in accordance with manufacturer's installation instructions and at recommended application rate to achieve GA-214 Level 5 Smooth appearance, free of visible tape joint lines after finish painting is completed.

1) Spray-apply Primer / Surfacer to 15 - 20 mil wet film thickness applied in two separate passes at 90 degrees to each other for proper coverage.

2) Sand surface of Primer / Surfacer lightly after it has dried to eliminate any unwanted stipple pattern or texture.

2. Surfaces in Mechanical, Electrical and Storage Rooms: Level 4.

3. Surfaces Concealed from View with Thin Adhered Surface Finish (wallcovering): Level 4, no texture.

4. Surfaces Concealed from View with Thick Adhered Surface Finish (sheet vinyl or rubber base, plastic sheet wainscots, stainless steel wall panels etc.): Level 3, no texture.

5. Concealed from View without Surface Finish Above Suspended Lay-In Ceilings: Level 1.

6. Concealed from View with Tile Finish: No joint treatment this section; joint treatment is specified in Section 09 3000.

7. Parapet Coverboard: No finish.

B. Tape, fill and sand exposed joints, edges and corners to produce smooth surface ready to receive finishes.

1. Feather coats of joint compound so that camber is maximum 1/32-inch.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM C475 – Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.

2. ASTM C840 – Standard Specification for Application and Finishing of Gypsum Board.

3. ASTM C1002 – Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

4. ASTM C1177 – Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.

5. ASTM C1178 – Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel.

6. ASTM C1278 – Standard Specification for Fiber-Reinforced Gypsum Panel.

7. ASTM C1396 – Standard Specification for Gypsum Board.

8. ASTM C1629 – Standard Classification for Abuse-Resistant Non-decorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels.

9. ASTM D3273 – Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

10. ASTM E119 – Standard Test Methods for Fire Tests of Building Construction and Materials.

C. Gypsum Association (GA):

1. GA-214 – Recommended Levels of Gypsum Board Finish.

2. GA-216 – Application and Finishing of Gypsum Board.

D. Underwriters Laboratory Inc. (UL):

1. UL 263 – Standard for Fire Tests of Building Construction and Materials.

1.03 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the work of this section with a minimum five years of consecutive, successful experience.

1.04 PRE-INSTALLATION CONFERENCE

A. Prior to start of GWB installation, Contractor shall schedule a pre-installation conference at the job site to review the project conditions and construction requirements. Persons attending pre-installation conference shall include the Contractor, GWB installation and finishing foreman, Architect, Owner Representative(s).

1.05 REGULATORY REQUIREMENTS

A. Conform to applicable codes and installation requirements for fire rated assemblies referenced on the Drawings.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original and unopened packages, containers, or bundles, with brand names and manufacturer's labels intact and legible.

B. Store materials in dry location, fully protected from weather and direct exposure to sunlight.

C. Stack gypsum board products flat and level, properly supported to prevent sagging or damage to ends and edges.

D. Store corner bead and other metal and plastic accessories to prevent bending, sagging, distortion, or other mechanical damage.

1.07 PROJECT CONDITIONS

A. Environmental Conditions: Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C840 requirements, gypsum board manufacturer's recommendations, and the following; where requirements conflict, the most stringent requirement shall govern:

1. Building Dry Out: Do not start installation of GWB until Initial Building Dry Out and Environmental Control of building is complete and operational.

2. Wood Framing Moisture Content: Moisture content of wood-framing shall be 15% or less before starting GWB installation.

3. GWB Moisture Content: Do not begin taping and finishing of GWB until temperature of at least 50 degrees has been maintained for a period of 48 hours, and a GWB moisture content of 0.4% on a gypsum scale (12% on a wood scale) or less is achieved.

4. Lighting Level: Minimum of 15 candle power per square foot to be provided and maintained to assure quality workmanship.

5. Ventilation: Provide controlled ventilation during joint finishing operations, to eliminate excessive moisture. Avoid drafts during hot, dry weather to prevent finishing materials from drying too quickly.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2. Primers: VOC levels of primers used during construction shall not exceed 100 g/l VOC limit.

2.02 GYPSUM BOARD MATERIALS

A. Manufacturers / Products:

1. Fire-Rated Assemblies:

a. Fire-Rated Assemblies with Proprietary Manufacturers / Products: Use the manufacturers / products required by the fire rated assemblies referenced on the Drawings that list proprietary manufacturers / products whether specified herein or not.

b. Fire-Rated Assemblies with Non-Proprietary (Generic) Manufacturers / Products: Use any of the specified products below in fire rated assemblies referenced on the Drawings that list generic GWB products.

2. Non-Fire-Rated Assemblies: Use any of the products below at the locations noted on the Drawings.

B. Interior Gypsum Board (GWB): Conform to ASTM C1396.

1. Manufacturers / Products:

a. CertainTeed; *Type X Gypsum Board*.

b. GP Gypsum; *ToughRock Fireguard X*.

c. National Gypsum; *Gold Bond Brand Fire-Shield X Gypsum Board*.

d. USG; *Sheetrock Firecode X Gypsum Panels*.

2. Thickness: As noted on the Drawings.

3. Edges: Tapered.

4. Size: Largest size practicable to minimize joints in place and for least number of butt joints.

5. Ends: Square cut.

6. Location: Standard interior gypsum board used throughout the Project unless noted otherwise.

7. Fire Rated: Type X, fire rated, tested in accordance with ASTM E119 or UL 263.

C. Water Resistant Panels (WRGWB): Conform to ASTM C1396 and physical property requirements of ASTM D3273.

1. Manufacturers / Products:

a. CertainTeed; *M2TECH Moisture & Mold Resistant Drywall*.

b. GP Gypsum; *ToughRock Mold-Guard Gypsum Board*.

c. National Gypsum; *Gold Bond Brand XP Gypsum Board*.

d. USG; *Sheetrock Mold Tough Firecode X Panels*.

2. Thickness: As noted on the Drawings.

3. Edges: Tapered.

4. Size: Largest size practicable to minimize joints in place and for least number of butt joints.

5. Ends: Square cut.

6. Location: Where shown or indicated on Drawings.

7. Fire Rated: Type X, fire rated, tested in accordance with ASTM E119 or UL 263. Use at fire rated walls noted on Drawings.

D. High Impact Gypsum Board (HIGWB): Conform to ASTM C1396 and physical property requirements of ASTM C1629.

1. Manufacturers / Products:

a. CertainTeed; *Extreme Impact.*

b. CertainTeed; *Extreme Abuse.*

c. GP Gypsum; *ToughRock Fireguard X Abuse Resistant Gypsum Board*.

d. National Gypsum; *Gold Bond Brand Hi-Impact XP Gypsum Board*.

e. National Gypsum; *Gold Bond Brand Hi-Abuse XP Gypsum Board*.

2. Minimum Performance Requirements:

a. Surface Abrasion: Level 2.

b. Surface Indentation: Level 1.

c. Soft-Body Impact Penetration: Level 1

3. Thickness: As noted on the Drawings.

4. Edges: Tapered.

5. Size: Largest size practicable to minimize joints in place and for least number of butt joints.

6. Ends: Square cut.

7. Location: Where shown or indicated on Drawings.

8. Fire Rated: Type X, fire rated, tested in accordance with ASTM E119 or UL 263. Use at fire rated walls noted on Drawings.

E. Tile Backer Board (TBB): Conform to ASTM C1396 and C1278 and physical property requirements of ASTM C1178.

1. Manufacturers / Products:

a. CertainTeed; *GlasRoc Diamond Tile Backer*.

b. GP Gypsum; *DensShield Tile Backer*.

c. National Gypsum; *Gold Bond Brand eXP Tile Backer*.

d. USG; *Fiberock Tile Backerboard and Underlayment*.

2. Thickness: As noted on the Drawings.

3. Edges: Tapered.

4. Size: Largest size practicable to minimize joints in place and for least number of butt joints.

5. Ends: Square cut.

6. Location: Where shown or indicated on Drawings.

7. Fire Rated: Type X, fire rated, tested in accordance with ASTM E119 or UL 263. Use at fire rated walls noted on Drawings.

F. Exterior Gypsum (GWB) Sheathing Board: Conform to ASTM C1396 and physical property requirements of ASTM C1177 and D3273:

1. Manufacturers / Products:

a. CertainTeed; *GlasRoc Embedded Glass Reinforced Gypsum Sheathing*.

b. GP Gypsum; *DensGlass Sheathing*.

c. National Gypsum; *Gold Bond Brand eXP Sheathing*.

d. USG; *Securock Glass-Mat Sheathing*.

2. Thickness: As noted on the Drawings.

3. Edge and End Configuration: Square.

4. Size: Largest size practicable to minimize joints in place and for least number of butt joints.

5. Location: On exterior walls where shown or indicated on drawings.

6. Fire Rated: Type X, fire rated, tested in accordance with ASTM E119 or UL 263. Use at fire rated walls noted on Drawings.

G. Parapet Coverboard: Glass mat reinforced gypsum panels with non-asphaltic coating.

1. Manufacturer / Product: GP Gypsum; *DensDeck Prime*.

2. Thickness: 1/2-inch.

2.03 ACCESSORIES

A. Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.

1. Manufacturers / Products:

a. Hilti; *CP 506 Smoke and Acoustic Sealant.*

b. Tremco; *Acoustical Sealant.*

c. USG; *Sheetrock Brand Acoustical Sealant.*

B. Outside Square Corners: Galvanized metal corner bead factory clad with paper tape; Beadex *Microbead* or approved.

C. Angled Corners: Beadex *B1 Flex 100' Tape-On Flexible Corner Bead*, or approved.

D. J-Mold (Where GWB Abuts Dissimilar Material and Is Exposed to View): Galvanized metal J-shaped trim factory clad with paper; Beadex *B9J Tape-On "J" Trim* or approved.

1. GWB Abuts Windows: Provide temporary heavy weight cardboard strip 3-inches wide between trim and face of window frame to protect frame from dirt and damage.

E. L-Mold (Where GWB Abuts Dissimilar Material and Is Exposed to View): Galvanized metal J-shaped trim factory clad with paper; Beadex *B4 Tape-On "L" Trim* or approved.

1. GWB Abuts Windows: Provide temporary heavy weight cardboard strip 3-inches wide between trim and face of window frame to protect frame from dirt and damage.

F. Control Joint: GA 216; roll-formed metal control joint with removable strip, similar to USG *No. 93,* or approved.

G. Joint Materials: Provide products by manufacturer of gypsum board. Conform to ASTM C475 and as recommended by gypsum board manufacturer for project conditions.

1. Interior Applications – Gypsum Board (except Water Resistant Panels): Ready-mixed vinyl-based joint compound:

   a. Taping Compound: Type specifically formulated for embedding tape and accessories and for pre-filling.

   b. Topping Compound: Type specifically formulated for finishing drywall over taping compound.

   c. Joint Tape: Gypsum Board manufacturer's standard paper reinforcing tape.

2. Water Resistant Panels: *Sheetrock Brand Durabond Setting-Type Joint Compound* or *Sheetrock Brand Easy Sand Joint Compound* manufactured by USG, or equivalent product recommended by specified panel manufacturers.

   a. Joint Tape: Paper tape, *Sheetrock Brand Joint Tape* manufactured by USG, or equivalent product recommended by specified panel manufacturers.

3. Tile Backer Board (With Tile Finish):

   a. Joint and Taping Compound (Thin Set Cement Mortar): Specified in Section 09 3000.

   b. Joint Tape (Glass Fiber Mesh): Specified in Section 09 3000.

4. Parapet Coverboard: No joint material.

H. Screws:

1. Interior Application: Conform to ASTM C1002; bugle-head steel, self-drilling type, black phosphate finish.

2. Water Resistant Panels: Provide with yellow zinc corrosion resistant coating.

3. Parapet Coverboard: Provide with yellow zinc corrosion resistant coating.

I. Nails: Not allowed.

J. Sealer: Primer / Surfacer: USG Sheetrock *Primer-Surfacer Tuff-Hide* or approved equal.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 09 3000

TILE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Ceramic and Porcelain Tile Work.

B. Cement Tile Work.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. Tile Council of America (TCA):

1. ANSI / TCA A108.1 thru A108.10 – (Ceramic Tile Installation Methods)

2. ANSI / TCA A137.1 – Specifications for Ceramic Tile.

3. TCA Handbook for Ceramic Tile Installation.

1.03 PERFORMANCE REQUIREMENTS

A. General: All tile work shall be performed in conformance with installation methods outlined in the Tile Council of America (TCA) *Handbook For Ceramic Tile Installation* as follows:

B. Wall Tile Over GWB Tile Backer Board: Thin-set application per **TCA Installation Method W245** *Coated Glass Mat Water-Resistant Gypsum Backer Board Thin-Set* using latex thin-set mortar bond coat over GWB Tile Backer Board.

1. Grout: Epoxy Grout.

C. Expansion Joints (Vertical and Horizontal): Install sealant filled joints per **TCA Installation Method EJ171** at perimeter of floors and inside corners of walls, and where shown on Drawings; match sealant color to grout color.

D. Cement Wall Tile: Install as recommended by the manufacturer and seal per the manufacturer's recommendations for a stain-free installation.

1.04 QUALITY ASSURANCE

A. Conform to ANSI / TCA A137.1

B. Conform to TCA Handbook for Ceramic Tile Installation.

C. Conform to manufacturer's installation instruction.

1.05 QUALIFICATIONS

A. Manufacturer: Company specializing in the manufacture of products specified in this section with a minimum ten years of documented experience.

B. Tile Installer: Company specializing in applying the work of this section with a minimum five years of documented experience and approved by product manufacturer.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and protect products as recommended by the manufacturer.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Maintain 50 degrees F. minimum during installation of mortar materials.

1.08 GUARANTEE / WARRANTY

A. 2 Year Contractor Guarantee: The Contractor shall guarantee the tile installation for a period of two (2) years against defects in installed materials and workmanship, deterioration and leaks including a 2-year watertight guarantee on waterproof membrane installation. Correct any tile work that is defective, improperly installed or leaking for a period of 2 years at no cost to the Owner.

B. Manufacturer’s Warranty: Provide tile installation systems manufacturer’s standard 10 year guarantee that the tile installation systems will be free from manufacturing defects and will not break down or deteriorate under normal usage for period of 10 years.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2. Adhesives: VOC levels of adhesives used during construction shall not exceed 100 g/l VOC limit.

2.02 TILE

A. Tile WT-1: Ceramic Wall Tile

1. Manufacturer / Product: United Tile; *Handwritten Colors & Field by Crossville.*

2. Size: 3-inch x 12-inch.

3. Joint Width: 3/16-inch.

B. Tile WT-2: Accent Wall Tile

1. Manufacturer / Product: United Tile; *Handwritten Colors & Field by Crossville.*

2. Size: 3-inch x 12-inch.

3. Joint Width: 3/16-inch.

C. Cement Tile WT-3: Wall Tile

1. Manufacturer / Product: Tesselle; *Petal Lily 7.5" Cement Breeze Block*.

2. Size: 7.5-inch x 7.5-inch x 2.5-inch.

3. Joint Width: 1/16-inch or as recommended by the manufacturer.

D. Provide coved base, bullnose cap, bullnose outside corners, coved inside corners, wall borders, caps, stretchers, round in corners, round out corners, and other shapes required for complete installation.

E. Color Selections: Refer to Section 01 8419.

2.03 TILE BACKER BOARD

A. GWB Tile Backer Board (TBB): Installation is specified in Section 09 2900; joint treatment is specified herein.

1. Joint Bonding Material: Mortar Bond Coat Materials (Thinset) specified in this section.

a. Joint Tape: 2-inch wide, polymer-coated alkali-resistant 10 x 10 glass fiber mesh tape, self-adhesive; approved by thinset mortar manufacturer.

2.04 SETTING / INSTALLATION SYSTEMS (MORTAR AND GROUT)

A. General Requirements:

1. Manufacturer / Product Selection: Mortar and grout products installed shall be manufactured by a single manufacturer selected from any of those listed below (mixing different manufacturer's products is not allowed).

2. 10 Year Warranty: Installed products are subject to a ten (10) year warranty by the manufacturer; refer to warranty paragraph in Part 1 of this specification.

B. Mortar Bond Coat Materials (Thinset): Select any of the following manufacturer's products:

1. Custom Building Products; *Prolite Tile and Stone Mortar.*

2. Custom Building Products; *MegaFlex.*

3. Custom Building Products; *MegaLite Crack Prevention Mortar.*

4. Laticrete; *255 MultiMax.*

5. Laticrete; *254 Platinum.*

6. Mapei; *Kerabond+Keralastic* (floors and walls).

C. Epoxy Grout: Select any of the following manufacturer's products:

1. Custom Building Products; *100% Solids Epoxy Grout*, combined with *Polyblend Sanded Grout.*

2. Laticrete; *SpectraLOCK PRO Grout.*

3. Mapei; *Kerapoxy.*

4. Colors: To be determined.

2.05 ACCESSORIES

A. Provide fillers, admixtures, and adhesives as required to suit conditions for complete installation.

B. Sealant: High performance, single component neutral cure silicone sealant; in color matching grout joint; provide backer rod and bond breaker tape of type recommended by sealant manufacturer.

1. Manufacturer / Products: Laticrete; *Latasil,* or equal.

2. Primer: Laticrete; *9118 Primer.*

C. Sealer:

1. Porcelain Tile and Joint Sealer: Miracle Sealants Company; *511 Porous Plus.*

D. Metal Trim / Edge Strips: Provide metal trim made to fit flooring conditions:

1. Aluminum Edge Trim at Wall Tile: Schluter Systems *QUADEC* brushed stainless steel, match tile thickness.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 09 5100

ACOUSTICAL CEILINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Suspended Acoustical Ceiling Systems (ACT).

1.02 PERFORMANCE REQUIREMENTS

A. Provide suspended ceiling systems conforming to the following performance requirements:

1. Materials, Design and Installation: Conform to the applicable requirements of following reference standards:

a. International Building Code (IBC).

b. ASCE Chapter 13 for Seismic Design Requirements for Non-structural Components.

c. ASTM C635.

d. ASTM C636.

e. ASTM E580.

f. CISCA.

g. NWCB Technical Bulletin No. 401.

h. Suspended Ceiling System manufacturer's installation instructions and requirements for the specific products specified in this section.

2. Seismic Restraint Design: Conform to the requirements of the IBC for the seismic design category and geographic region in which the project is located by either prescriptive requirements or an engineered design:

a. Prescriptive Requirements: Conform to the prescriptive requirements found in NWCB Technical Bulletin No. 401.

b. Engineered Design: Engage a professional engineer experienced in the design of suspended ceiling systems and currently licensed in California State to provide an engineered design of the seismic restraint specifically for the suspended ceiling system required on this project conforming to the IBC and any applicable local or State code requirements. Engineered design shall be shown on the shop drawings and the drawings stamped and signed by the engineer.

3. Work of Other Trades: Coordinate with and accommodate the work of other trades wherever conflicts exist with the suspended ceiling system and / or associated seismic restraint components.

a. Review work of other trades in advance of installation and resolve conflicts prior to fabrication and installation.

b. Provide additional support and seismic restraint components as required to allow suspended ceiling system to be installed around work of other trades.

c. Provide additional hangar wire and anchors to building structure as required to provide support for work of other trades, including any lighting or mechanical components, which are intended to be supported on, or interface with, the suspended ceiling system in conformance with requirements of referenced standards.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society of Civil Engineers (ASCE).

C. American Society for Testing and Materials (ASTM):

1. ASTM C635 – Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.

2. ASTM C636 – Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.

3. ASTM E580 – Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions.

D. Ceilings and Interior Systems Construction Association (CISCA):

1. Guidelines for Seismic Restraint for Direct-Hung Suspended Ceilings Assemblies (Seismic Zones 3 and 4).

E. International Building Code (IBC).

F. Northwest Wall and Ceiling Bureau (NWCB):

1. NWCB Technical Bulletin No. 401 – Suspension Systems for Acoustical Lay-In Ceilings.

1.04 QUALITY ASSURANCE

A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with a minimum five years of documented experience.

B. Installer Qualifications: Experienced in performing work of this section with a minimum five years documented experience in the installation of work similar to that required for this project.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Maintain uniform temperature and maximum humidity as recommended by manufacturer prior to, during, and after acoustical unit installation.

1.06 PROJECT CONDITIONS

A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

B. Install acoustical units after interior wet work is dry and building temperature and humidity has been stabilized at normal levels for at least one week.

1.07 EXTRA MATERIALS

A. Provide additional acoustical ceiling panels in original unopened containers of each different ceiling panel type specified for Owner's maintenance use.

1. Quantity: Provide 1 carton of each different ceiling panel type.

PART 2 - PRODUCTS

2.01 SUSPENDED ACOUSTICAL CEILING TYPES (ACT)

A. **ACT-1 (All Locations where ACT is Noted, except for the Kitchen or Food Prep Area)**: Armstrong *Dune, No. 1776,* 24-inch x 48-inch x 5/8-inch size, square tegular edge, white color, 15/16-inch suspended grid application.

B. **ACT-2 (For Kitchen and Food Prep Area)**: Armstrong *Kitchen Zone, No. 673,* 24-inch x 24-inch x 5/8-inch size, square tegular edge, white color, 15/16-inch *Clean Room Suspension System* grid application with hold down clips.

2.02 SUSPENSION SYSTEM – GENERAL USE

A. Manufacturer: Armstrong, *Prelude XL* or similar or Armstrong *Clean Room Suspension System,* as specified for each different ceiling type. Must be approved by ceiling tile system manufacturer.

B. Suspension Systems - General: ASTM C635; die cut and interlocking components, with stabilizer bars, clips, splices, and perimeter moldings as required for a complete installation.

1. Structural Classification: Heavy Duty in accordance with ASTM C635.

2. Hangar Wire: 12 gauge (minimum) steel wire conforming to performance requirements specified herein.

C. Exposed Steel Suspension System: Formed steel, commercial quality cold rolled, with factory painted finish; heavy-duty.

1. Profile: Tee; 15/16-inch wide face or 9/16-inch wide face, as specified for each different ceiling type.

2. Construction: Double web.

3. Interior Applications: Hot dipped galvanized.

4. Finish: White.

D. Perimeter Moldings / Wall Angle: Same material and finish as suspension system.

1. At Exposed Grid: Provide 7/8-inch wide wall angle molding matching color of suspension system.

E. Materials for Lateral Force Bracing: Conform to performance requirements specified herein.

1. Perimeter Seismic Clip: Armstrong *BERC2 – 2" Beam End Retaining Clip;* install at end of each main runner and cross runner where they abut wall.

F. Accessories:

1. Support Channels, Braces, Struts and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness and deflection requirement specified.

2. Trapeze Bars: Provide back to back 1-1/4-inch cold-rolled steel channels or Unistrut trapeze support channels supported from structural members to span below non-structural work by other trades that prevents installation of support wires plumb, do not support ceiling from non-structural items.

a. Gauge, size and configuration of cold-rolled steel channels or Unistrut channel shall be as required to limit deflection to less than L / 360 when with 250 pound load on each hanger.

3. Hangar Wire Support Anchors: Conform to Performance Requirements specified herein. Select the following methods as appropriate for conditions / construction:

   a. Steel Structure: Powder actuated pin type fasteners with ICC-ES approval for seismic applications; manufactured by Hilti, Ramset or equal.

   b. Wood Structure: Carbon steel lag eye bolt, 1/4-inch diameter, 3-inch minimum length.

4. Hold Down Clip: Extruded polyvinyl chloride clip to work with 5/8-inch panels.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 09 5426

LINEAR WOOD CEILINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Linear Wood Ceiling System.

1.02 PERFORMANCE REQUIREMENTS

A. Linear Wood Ceiling System: Provide suspended ceiling system conforming to the following performance requirements:

1. Materials, Design and Installation: Conform to the applicable requirements of following reference standards (latest adopted edition):

a. International Building Code (IBC).

b. ASCE Chapter 13 for Seismic Design Requirements for Non-structural Components.

c. ASTM C635.

d. ASTM C636.

e. ASTM E580.

f. CISCA.

g. NWCB Technical Bulletin No. 401.

h. Suspended Ceiling System manufacturer's installation instructions and requirements for the specific products specified in this section.

2. Seismic Restraint Design – Linear Wood Ceiling System: Provide a pre-engineered suspended ceiling system conforming to the requirements of the IBC for the seismic design category and geographic region in which the project is located:

a. Prescriptive Requirements: Conform to the prescriptive requirements found in NWCB Technical Bulletin No. 401.

b. Engineered Design: Engage a professional engineer experienced in the design of suspended ceiling systems and currently licensed in California State to provide an engineered design of the seismic restraint specifically for the suspended ceiling system required on this project conforming to the IBC and any applicable local or State code requirements. Engineered design shall be shown on the shop drawings and the drawings stamped and signed by the engineer.

3. Work of Other Trades: Coordinate with and accommodate the work of other trades wherever conflicts exist with the suspended ceiling system and / or associated seismic restraint components.

a. Review work of other trades in advance of installation and resolve conflicts prior to fabrication and installation.

b. Provide additional support and seismic restraint components as required to allow suspended ceiling system to be installed around work of other trades.

c. Provide additional hangar wire and anchors to building structure as required to provide support for work of other trades, including any lighting or mechanical components, which are intended to be supported on, or interface with, the suspended ceiling system in conformance with requirements of referenced standards.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society of Civil Engineers (ASCE).

C. American Society for Testing and Materials (ASTM):

1. ASTM C635 – Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.

2. ASTM C636 – Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.

3. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

4. ASTM E580 – Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions.

D. Ceilings and Interior Systems Construction Association (CISCA):

1. Guidelines for Seismic Restraint for Direct-Hung Suspended Ceilings Assemblies (Seismic Zones 3 and 4).

E. International Building Code (IBC).

F. Northwest Wall and Ceiling Bureau (NWCB):

1. NWCB Technical Bulletin No. 401 – Suspension Systems for Acoustical Lay-In Ceilings.

1.04 QUALITY ASSURANCE

A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with a minimum of five years of documented experience.

B. Installer Qualifications: Installer must have a minimum of two (2) years of successful experience in installation of wood systems of similar requirements to this project. The installer must be acceptable to the architect, manufacturer and owner's representative.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Maintain uniform temperature and maximum humidity as recommended by manufacturer prior to, during and after installation.

B. Fire Performance Characteristics: Wood ceilings, wall boards and black hardboard spacers shall conform to Class A flame spread ratings, when tested according to ASTM E84. The Manufacturer will be required to provide an independent test report for the wood and hardboard spacer material certifying conformance to ASTM E84 and the Class A rating.

1.06 PROJECT CONDITIONS

A. Sequence work to ensure linear ceiling system and wall panels are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated and overhead work is completed, tested and approved.

B. Install linear ceiling and wall systems after interior wet work is dry and building temperature has been stabilized at normal levels for at least one week. The heating and cooling systems shall be operating before, during and after installation; with humidity of the interior spaces maintained between 25% and 55%.

1.07 DELIVERY, STORAGE AND HANDLING

A. Components shall be delivered to the project site in original, unopened packages.

B. Materials shall be stored flat, level and up off the floor in a fully enclosed space.

C. For a minimum of seventy-two (72) hours immediately prior to installation, the wood panels shall be stored in the room in which they will be installed.

1. The temperature and humidity of the room shall closely approximate those conditions that will exist when the building is occupied.

D. Care in handling must be exercised to avoid damage.

PART 2 - PRODUCTS

2.01 LINEAR WOOD CEILING SYSTEMS

A. Manufacturers: The Continuous Linear Wood Ceiling System specified herein manufactured by Rulon International is the basis of the design and establish the minimum standard of quality required for this project. The following manufacturers that manufacturer continuous linear wood ceilings systems that meet or exceed this standard of quality and function are acceptable:

1. Rulon International (specified, basis of design).

2. Armstrong.

3. The 9Wood, Inc.

4. Substitutions: Refer to Section 01 6000 for substitution procedures and requirements.

B. Linear Wood Ceiling Systems:

1. Linear Wood Boards: Grade A Ash solid hardwood, manufactured in random lengths with tongue-and-groove ends.

2. Wood Board Modules: 4-1/2-inch module, having wood boards 3/4-inch thick x 3-3/4-inch wide and having a 3/4-inch reveal with factory-installed black fiber felt spacer between wood strips. The ceiling module must be solid wood, sealed on all sides, and have stress relieving saw cuts on the reverse side of all materials.

3. Panel Edge Detail: Solid Ash hardwood vertical board to match wood boards. Provide Rulon “Linear Open Floating Perimeter Condition” Drawing No. D-027 complete with 1-1/2-inch x 2-inch wood blocking and L-angle for attachment of grid to blocking with fasteners as shown on manufacturers detail.

4. Panel Configuration: As shown on Drawings.

5. Fire Classification: Class 1 or A flame spread and smoke developed ratings when tested according to ASTM E84.

6. Acoustic Blanket: Owens Corning *QuietR Rotary Duct Liner*, 2-inch.

7. Factory Finish:

   a. Sand work smooth and set exposed nails and screws.

   b. Finish: Factory finish fabricated items in accordance with AWI Premium Grade as follows:

   c. AWI Transparent Finish System – Catalyzed Polyurethane, including stain, vinyl sealer, 220 grit sanding, 2 separate finish coats; satin gloss.

   d. Color: To be determined.

8. Suspension System: Rulon *Cliprails* system, installed on #12-gauge wire hangers.

   a. Suspension Systems - General: Heavy-duty; die cut and interlocking components, with stabilizer bars, clips, splices and perimeter trim as required for a complete installation.

      1) Manufacturer's recommended wire hangers (#12 gauge minimum) along manufacturer's *Cliprail* system.

      2) Hangar Wire Support Anchors: Conform to Performance Requirements specified herein. Select the following methods as appropriate for conditions / construction:

         a) Steel Bar Joists: Anchors not allowed; wrap wire around bottom chord of joist.

         b) Structural Steel Members: Powder actuated pin type fasteners with ICC-ES approval for seismic applications; manufactured by Hilti, Ramset or equal.

         c) Wood Structure: Carbon steel lag eye bolt, 1/4-inch diameter, 3-inch minimum length.

9. Accessories:

   a. Wood Trim: Grade A Solid Ash hardwood, size and configuration as shown on Drawings, provide longest lengths possible for minimum number of butt joints.

      1) Finish to match linear wood ceiling boards.

      2) Provide backing and / or bracket assembly as required for secure attachment and straight alignment.

b. Z-Clip: Manufacturers Z-clip for attaching vertical edge trim as shown on Drawings.

c. Access Panels: Provide access panels constructed in accordance with manufacturer's instructions and located on site with Owner.

d. Support Channels, Braces, Struts and Hangers: Galvanized steel; size and type to suit application, seismic requirements and ceiling system flatness and deflection requirement specified.

e. Trapeze Bars: Unistrut channels, gauge, size and configuration shall be as required to limit deflection to less than L / 360 with 250 pound load on each hangar.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 09 6100

CONCRETE FLOOR SEALING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Concrete Floor Cleaning.

B. Concrete Floor Sealer.

1.02 SCOPE OF WORK

A. Scope of Work: Clean and seal the concrete floors and stair treads / landings that are scheduled to be left exposed to view without any floor covering.

1. Cleaning: Clean the concrete floors to remove dirt, oil, grease, stains, sealers, paint, etc. using a self-contained power floor scrubbing machine and localized hand cleaning methods and products to clean difficult areas.

2. Sealing: Apply a concrete hardener, sealer, densifier and a concrete floor sealer to concrete floors to provide a consistent sheen and appearance.

1.03 PERFORMANCE REQUIREMENTS

A. Performance Requirements: Provide concrete floor sealer system that provides the following:

1. Waterproof Properties: Rilem Test Method 11.4, 70% or greater reduction in absorption when compared against untreated concrete.

2. High Traction Rating: 0.6 rating or above when tested in accordance with NFSI 101-A.

1.04 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. Reunion Internationale des Laboratoires D'Essais et de Recherches sur les Materiaux et les Constructions (RILEM):

1. Rilem Test Method 11.4 – Standard Measurement of Reduction of Moisture Penetration Through Horizontal Concrete Surfaces.

C. National Floor Safety Institute (NFSI):

1. NFSI Test Method 101-A – Standard for Evaluating High-Traction Flooring Materials, Coatings, and Finishes.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer's original packaging with identification labels and seals intact.

B. Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.

1.06 PROTECTION OF CONCRETE SLAB

A. Protect from petroleum stains during construction.

B. Restrict use of pipe cutting machinery.

C. Restrict placement of steel, wood or sawdust directly on slab.

D. Restrict use of acids or acidic detergents on slab.

E. Restrict placement of anything on the slab that could stain or discolor it.

1.07 PROJECT AMBIENT CONDITIONS

A. Comply with manufacturer's written recommendations.

1.08 EXTRA MATERIALS

A. Provide a 5 gallon container of cleaning solution for Owner's use in maintaining the floors.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Concrete Sealers: VOC levels of concrete sealers used during construction shall not exceed 100 g/l VOC limit.

2.02 CONCRETE FLOOR CLEANING PRODUCTS / EQUIPMENT

A. Cleaning Agents: Industrial strength floor cleaning agents suitable for removing dirt, oils / grease, stains, sealers, etc. from the existing and new concrete floors without damaging concrete and approved by the floor sealing system manufacturer.

1. Acceptable Material: Laticrete, *L&M Citrex* or approved equal.

B. Cleaning Equipment: Provide cleaning equipment and products as required to thoroughly clean concrete floors, including the following:

1. Walk Behind Self-Contained Scrubber Machine: Self-contained, self-powered industrial floor scrubbing machine, similar to the Tennant T5 Walk Behind Scrubber that lays down water and cleaning agent, scrubs floor surface with heavy duty rotating brushes and removes dirty water from the floor in one continuous operation, with separate tanks for clean water / cleaning solution and waste water.

2. Hand Cleaning Equipment: Scrub brushes, hand scrapers, buckets and wet vacuum as required to clean difficult areas, vertical concrete risers, corners and floor perimeters and small areas where scrubber machine will not fit.

2.03 CONCRETE FLOOR SEALING SYSTEM

A. Hardener, Sealer, Densifier: Proprietary, water based, odorless liquid, VOC compliant, environmentally safe chemical hardening solution leaving no surface film.

1. Acceptable Material: Laticrete, *L&M FGS Hardener Plus* or approved equal.

B. Finish Sealers:

1. Acceptable Material: Laticrete, *L&M PermaGuard SPS* or approved equal.

C. Cleaning Solution for Concrete Sealed with *L&M PermaGuard SPS*: Proprietary, mild, highly concentrated liquid concrete cleaner and conditioner containing wetting and emulsifying agents; biodegradable, environmentally safe and certified High Traction by National Floor Safety Institute (NFSI).

1. Acceptable Material: Laticrete, *L&M FGS Concrete Conditioner* or approved equal.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 09 6500

RESILIENT FLOORING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Static Dissipative Tile (SDT).

B. Luxury Vinyl Plank (LVP).

C. Rubber Base (RB).

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM F1066 – Standard Specification for Vinyl Composition Floor Tile.

2. ASTM F1700 – Standard Specification for Solid Vinyl Floor Tile.

3. ASTM F1861 – Standard Specification for Resilient Wall Base.

1.03 PRE-INSTALLATION CONFERENCE

A. Prior to start of flooring work, conduct a pre-installation conference at the job site to review the project conditions and installation requirements. Persons attending pre-installation conference shall include the General Contractor, flooring Installer, Architect, Owner, and flooring manufacturer representative.

B. Review related project requirements and submittals, status of substrate work and preparation, areas of potential conflict and interface, availability of materials and components, color and pattern layout, installer's training / installation requirements, adhesive application requirements / procedures, job conditions protection requirements for full and proper installation, integration and protection.

1. Pattern layout shall be marked out on the actual floor for review during the pre-installation conference meeting.

1.04 DELIVERY, STORAGE AND PROTECTION

A. Protect roll materials from damage. Store materials in accordance with manufacturer's instructions.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.

B. Maintain building temperature at 65 degrees F for 2 weeks minimum prior to installation.

C. Store materials for not less than 48 hours prior to installation in area of installation at a temperature above 65 degrees F to achieve temperature stability. After flooring has been installed, maintain conditions above 65 degrees F.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. VCT Adhesives: VOC levels of LVP and SDT adhesives used during construction shall not exceed 50 g/l VOC limit.

2. Other Adhesives: VOC levels of other adhesives used during construction shall not exceed 50 g/l VOC limit.

3. Cove Base Adhesives: VOC levels of cove base adhesives used during construction shall not exceed 50 g/l VOC limit.

4. Primers, Sealers and Undercoats: VOC levels of primers, sealers and undercoats used during construction shall not exceed 100 g/l VOC limit.

2.02 STATIC DISSIPATING TILE FLOORING (SDT)

A. Static Dissipating Tile (SDT):

1. Comply with ASTM F1066, of Class 2.

2. Size: 12-inch x 12-inch.

3. Thickness: 0.125-inch.

4. Application: Monolithic.

5. Manufacturer / Product: Armstrong; *Static Dissipative Tile.*

6. Color(s): Refer to Section 01 8419.

2.03 LUXURY VINYL PLANK (LVP)

A. Luxury Vinyl Plank (LVP-1):

1. Comply with ASTM F1700, Class III.

2. Tile Size: 9-inches by 60-inches.

3. Thickness: 0.197-inches.

4. Application: Random, refer to Drawings for pattern change / change of direction.

5. Manufacturer / Product: Patcraft; *Splitwood*.

6. Color(s): Refer to Section 01 8419.

B. Luxury Vinyl Plank (LVP-2 and LVP-3):

1. Comply with ASTM F1700, Class III.

2. Tile Size: 5.96-inches by 48-inches.

3. Thickness: 0.197-inches.

4. Application:

a. LVP-2: Herringbone Pattern.

b. LVP-3: Random, perpendicular to the exterior windows in the patient rooms.

5. Manufacturer / Product: Patcraft; *Mark Making*.

6. Color(s): Refer to Section 01 8419.

2.04 RUBBER BASE (RB)

A. Rubber Base (RB): Type TS rubber, vulcanized thermoset; top set, and as follows:

1. Comply with ASTM F1861.

2. Height: 4-inch.

3. Thickness: 0.125-inch thick.

4. Configuration: Standard toe base.

5. Finish: Satin.

6. Length: Roll (100 feet or longer).

7. Manufacturer: Johnsonite or Roppe.

8. Color(s): To be determined.

B. Adhesive: Manufacturer's recommended adhesive for wall substrate material.

2.05 ACCESSORIES

A. Subfloor Filler: Cementitious latex type not adversely affected by moisture or alkali as recommended by flooring and adhesive materials manufacturer for application to concrete slab on grade.

B. Primers and Adhesives: Premium (best) quality; specific type recommended / approved by flooring manufacturer for each different type of flooring and substrate.

C. Transitions: As shown on the Drawings.

D. Moldings and Edge Strips: Rubber in color matching rubber base, manufactured by Johnsonite, Roppe or approved.

E. Copper Grounding Strips: Provide copper grounding strips as required for the installation of the static dissipating tile (SDT).

1. Coordinate installation of the copper grounding strips provided with the static dissipating tile (SDT) with the electrical contractor.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 09 6516

RESILIENT SHEET FLOORING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Resilient Sheet Flooring (RSF).

1.02 PRE-INSTALLATION CONFERENCE

A. Prior to start of flooring work, conduct a pre-installation conference at the job site to review the project conditions and installation requirements. Persons attending pre-installation conference shall include the General Contractor, flooring Installer, Architect, Owner, and flooring manufacturer representative.

B. Review related project requirements and submittals, status of substrate work and preparation, areas of potential conflict and interface, availability of materials and components, color and pattern layout, installer's training / installation requirements, adhesive application requirements / procedures, job conditions protection requirements for full and proper installation, integration and protection.

1. Pattern layout shall be marked out on the actual floor for review during the pre-installation conference meeting.

1.03 DELIVERY, STORAGE AND PROTECTION

A. Protect roll materials from damage. Store materials in accordance with manufacturer's instructions.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.

B. Maintain building temperature at 65 degrees F for 2 weeks minimum prior to installation.

C. Store materials for not less than 48 hours prior to installation in area of installation at a temperature above 65 degrees F to achieve temperature stability. After flooring has been installed, maintain conditions above 65 degrees F.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Other Adhesives: VOC levels of other adhesives used during construction shall not exceed 50 g/l VOC limit.

2. Cove Base Adhesives: VOC levels of cove base adhesives used during construction shall not exceed 50 g/l VOC limit.

3. Primers, Sealers and Undercoats: VOC levels of primers, sealers and undercoats used during construction shall not exceed 100 g/l VOC limit.

2.02 RESILIENT SHEET FLOORING (RSF)

A. Resilient Sheet Flooring (RSF):

1. Manufacturer / Product: Oscoda Plastics®; *Protect-All Commercial Flooring.*

2. Sheets: 60-inches x 96-inches or 60-inches x 60-inches, which ever will produce the least amount of waste.

3. Thickness: 0.250-inch.

4. Cove Base: *Protect-All* cove base system with a height of 6-inches.

a. *Protect-All Rapid Weld*™ or corner rod for the cove base system.

5. Cove Base Cap: *Protect-All* aluminum or stainless steel cove base cap (Z-bar).

6. Floor Seams: *Protect-All Rapid Weld* or *V-Rod* for floor seams.

7. Application: Monolithic.

8. Color(s): To be determined.

2.03 ACCESSORIES

A. Subfloor Filler: Cementitious latex type not adversely affected by moisture or alkali as recommended by flooring and adhesive materials manufacturer for application to concrete slab on grade.

B. Primers and Adhesives: Premium (best) quality; specific type recommended / approved by flooring manufacturer for each different type of flooring and substrate.

1. Adhesive: *Protect-All* 2-part epoxy flooring adhesives.

C. Sealant: *Protect-All E-6100* sealant.

D. *Protect-All* stainless steel drain rings, corner guards, and transition strips.

1. *Protect-All* stainless steel fasteners and anchors for drain rings, corner guards, and transition strips.

E. Other installation materials as required and supplied by *Protect-All*.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 09 6723

FLUID-APPLIED FLOORING SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Fluid-Applied Flooring (FAF)

B. Fluid-Applied Coved Base (FACB).

1.02 PERFORMANCE REQUIREMENTS

A. The floor coating system shall be slip resistant. The minimum value for the static coefficient of friction for the floor coating system shall be 0.6 or greater.

B. The cured fluid-applied flooring material shall have a minimum compressive strength of 8,000 psi in accordance with ASTM C579.

C. The cured fluid-applied flooring material shall have a maximum water absorption value of 0.1 percent or less in accordance with ASTM C413.

D. Installed flooring shall drain positively and not have any areas that pond water.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM C413 – Standard Test Method for Absorption of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.

2. ASTM C579 – Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.

3. ASTM F1869 – Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

4. ASTM G21 – Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

1.04 QUALITY ASSURANCE

A. Applicator shall be an established firm regularly engaged in satisfactory installation of similar materials for the past 5 years. Contractor shall provide a letter of certification by Manufacturer that Contractor is a current qualified installer.

B. Single Source Responsibility: Provide fillers, broadcast media, underlayments, polyurethane body coat produced by the same manufacturer with no less than 15 years of experience in the manufacture and supply of these principal materials for work in this section.

C. Verification must be supplied by the Manufacturer that the polyurethane concrete based flooring system has passed, with an Observed Growth Rating of one (1), ASTM G21: Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi. This result will ensure that the polyurethane concrete based flooring system will not support the growth of hazardous fungi.

1.05 PRE-INSTALLATION MEETING

A. Arrange a pre-installation meeting with the General Contractor, flooring applicator, flooring system manufacturer's field representative, Owner and Architect, schedule at completion of subfloor preparation prior to start of any flooring installation.

1.06 MOCK-UPS

A. Field-Constructed Mock-Up: Prior to installing the fluid-applied flooring system, install a mock-up in one room showing color, texture, workmanship and coved base for review and approval by Architect and Owner; use materials and installation methods / sequence that will be employed in the actual flooring system installation.

B. Make adjustment to surface texture / finish if directed by the Architect and correct any non-conforming work. The approved mock-up conforming to requirements of Contract Documents shall become the standard of quality and construction for fluid-applied flooring installation.

C. Mock-up may be left as the part of the permanent construction if color, texture and workmanship conform to the requirements of this section and are acceptable to the Architect and Owner.

1.07 DELIVERY, STORAGE AND PROTECTION

A. Material shall be delivered in original Manufacturer's sealed containers with all pertinent labels intact and legible.

B. Store materials in dry protected area between 25° and 80° F. Keep out of direct sunlight. Protect from open flame; keep all containers grounded.

C. Follow all Manufacturer's specific label instructions and prudent safety practices for storage and handling.

1.08 PROJECT CONDITIONS

A. Material, air, and surface temperatures shall be in the range of 50° to 85° F during application and cure, unless a special formulation is being used and Manufacturer has been consulted.

B. Relative humidity in the specific location of the application shall be less than 85 percent and the surface temperature shall be at least 5 degrees above the dew point.

C. Conditions required of new concrete to be coated with flooring materials:

1. Concrete shall be moisture cured for a minimum of 7 days at 70° F. The concrete must be fully cured for a minimum of 28 days prior to application of the coating system pending moisture testing.

2. Surface contaminants such as curing agents, membranes, or other bond breakers should not be used.

3. Concrete shall have a "rubbed" finish; float or darby finish the concrete (a hard steel trowel is neither necessary nor desirable).

4. Drains should be set to the concrete grade rather than raised to the finished grade of the topping.

D. Concrete shall have a moisture emission rate of no more than 5 lbs. per 1000 sq. ft. per 24 hour period as determined by calcium chloride testing in accordance with ASTM F1869.

E. Vapor Barrier shall be installed beneath concrete slabs on-grade as specified in Section 03 3001 to prevent vapor transmission.

PART 2 - PRODUCTS

2.01 FLUID-APPLIED FLOORING SYSTEM

A. Fluid-Applied Flooring System: Slip Resistant Polyurethane Concrete Flooring system comprised of an integral broadcast of a decorative quartz blend in addition to a clear epoxy lockcoat.

1. Manufacturer / System:

a. Fluid-Applied Flooring (FAF): BASF Corporation / Performance Flooring; *Ucrete DP System (DP Basecoat 1/4-inch thick and DP Topcoat).*

b. Fluid-Applied Coved Base (FACB): BASF Corporation / Performance Flooring; *Ucrete RG (Cove Base)*.

c. Substitutions: Refer to Section 01 6000 for substitution procedures and requirements.

2. Mixing: Follow Manufacturer's prescribed procedures and recommendations.

3. Color: To be determined.

2.02 ACCESSORIES

A. Metal Trim / Edge Strips at Fluid Applied Flooring: Provide metal trim made to fit flooring conditions:

1. Fluid-Applied Flooring to Other Flooring Transitions: Schluter Systems *Schiene-AE30* satin anodized aluminum edge trim, select height to match fluid-applied thickness and adjacent material thickness.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 09 6800

CARPET

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Modular Carpet Tile (CPT).

B. Modular Walk-Off Carpet Tile (WOM).

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. International Building Code (IBC).

C. Carpet and Rug Institute (CRI):

1. CRI 104 – Standard for Installation of Commercial Textile Floorcovering Materials.

1.03 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in installing carpet with a minimum of five years of experience and approved by carpet manufacturer.

1.04 PRE-INSTALLATION MEETING

A. Arrange a pre-installation meeting with the General Contractor, carpet installer, carpet manufacturer's field representative, Owner and Architect, schedule at completion of subfloor preparation prior to start of any carpet installation.

1.05 REGULATORY REQUIREMENTS

A. Carpet shall comply with the requirements of IBC Section 804.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Store materials in area of installation for minimum period of 24 hours prior to installation or as required by manufacturer.

B. Maintain temperature between 65 and 70 degrees F ambient temperature 72 hours prior to, during and 24 hours after installation.

1.07 WARRANTY

A. Warranty: Provide the manufacturer's standard lifetime warranty against excessive surface wear, edge ravel, zippering, resiliency loss of backing, and delamination of the secondary backing from the primary backing containing the face fiber.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Carpet Adhesives: VOC levels of carpet adhesives used during construction shall not exceed 50 g/l VOC limit.

2. Primers, Sealers and Undercoats: VOC levels of primers, sealers and undercoats used during construction shall not exceed 100 g/l VOC limit.

2.02 MODULAR CARPET TILE

A. Modular Carpet Tile (CPT-1):

1. Manufacturer / Style / Pattern: Masland Contract; *Sound Off – Modular Tile (Hawthorne).*

a. Construction: All Loop Pile.

b. Face Fiber: EarthSmart re*fresh*fiber.

c. Dye Method: Solution Dyed.

d. Total Thickness: 0.25-inches.

e. Gauge: 1/12.

f. Primary Backing: Synthetic.

g. Secondary Backing: EarthWise.

h. Application: Tile, 24-inches x 24-inches.

i. Installation Method: Monolithic or as noted on the Drawings or in Section 01 8419.

j. Colors / Patterns: Refer to Section 01 8419 for color / pattern selections.

k. Warranty: Lifetime of Carpet.

B. Modular Walk-Off Carpet Tile (WOM):

1. Manufacturer / Style / Pattern: Shaw Contract; *Steppin Out* / *Welcome II Tile.*

a. Construction: Needlebond Hobnail.

b. Face Yarn: Pet Polyester.

c. Dye Method: 100% Solution Dyed.

d. Finished Pile Thickness: 0.157-inches.

e. Gauge: 1/12.

f. Stitches Per Inch: 11.0.

g. Tufted Weight: 49 oz. / sq. yd.

h. Primary Backing: Synthetic.

i. Application: Tile, 24-inches x 24-inches.

j. Installation Method: Monolithic.

k. Color(s): Refer to Section 01 8419.

2.03 ACCESSORIES

A. Subfloor Filler: Cementitious latex type not adversely affected by moisture or alkali as recommended by flooring and adhesive materials manufacturer for application to concrete slab on grade. Gypsum based fillers are not acceptable.

B. Moldings and Edge Strips: Rubber, type as required to fit condition, color to match rubber base color or as selected by Architect; Johnsonite or as required to match rubber base provided by Section 09 6500.

C. Primer and Adhesives: Premium (best) quality releasable type(s) adhesive recommended by manufacturer for each specific product and application and as required to provide warranty.

D. Seam Sealer: Type recommended by manufacturer for each specific carpet and application to provide warranty.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 09 7733

PLASTIC SHEET WAINSCOTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Fiberglass Reinforced Plastic Panels (FRP).

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM D3841 – Standard Specification for Glass-Fiber-Reinforced Polyester Plastic Panels.

1.03 QUALITY ASSURANCE

A. Fabricator / Installer Qualifications: Company regularly engaged in fabricating and installing plastic sheet wainscots of the type and complexity specified in this section, and that employ skilled workers who custom fabricate products similar to those required for this project and whose products have a record of successful in-service performance.

1.04 DELIVERY, STORAGE AND HANDLING

A. Store products indoors and protect from moisture, construction traffic, and damage.

B. Store panels flat on clean, dry surface. Do not stand on edge or stack on fresh concrete or other surfaces that emit moisture.

C. Store panels for at least 72 hours at temperature and humidity conditions approximating the average environment of the finished room.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Panel Adhesives: VOC levels of panel adhesives used during construction shall not exceed 50 g/l VOC limit.

2. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2.02 FIBERGLASS REINFORCED PLASTIC PANELS (FRP)

A. Available Manufacturers: Subject to conformance with the requirements of this section, manufacturers offering products that may be provided for this project include, but are not limited to, the following:

1. Crane Composites (Kemlite and Sequentia).

2. Marlite.

3. Nudo.

4. Panolam.

B. General:

1. Composite plastic panels of random chopped fiberglass roving, modified polyester copolymer, inorganic fillers, and pigments, comply with ASTM D3841.

2. Resistant to rot, corrosion, staining, denting, peeling, and splintering.

3. USDA accepted.

C. Fire Rating: Class A.

D. Size: 48-inch width, heights as indicated on the Drawings.

1. Thickness: 0.09-inch.

E. Texture: Smooth.

F. Color: White.

G. Trim Accessories:

1. Provide panel manufacturer's standard extruded aluminum moldings to meet project conditions.

2. Adhesive: Structural construction adhesive as recommended by manufacturer for good adhesion to substrate material.

3. Sealant: Clear silicone sealant as recommended by manufacturer.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 09 7743

SOLID POLYMER WALL CLADDING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Solid Polymer (Solid Surface) Shower Wall Cladding (SPWC).

B. Cementitious Backer Unit (CBU) Substrate for Wall Cladding.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American National Standards Institute (ANSI):

1. ANSI A118.9 – Test Methods and Specifications for Cementitious Backer Units.

C. American Society for Testing and Materials (ASTM):

1. ASTM D779 – Standard Test Method for Determining the Water Vapor Resistance of Sheet Materials in Contact with Liquid Water by the Dry Indicator Method.

2. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

3. ASTM E96 – Standard Test Methods for Water Vapor Transmission of Materials.

4. ASTM F1249 – Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor.

D. Underwriters Laboratory, Inc. (UL):

1. UL 723 – Test for Surface Burning Characteristics of Building Materials.

1.03 QUALITY ASSURANCE

A. Fabricator / Installer Qualifications: Wilsonart□□certified solid surface fabricator / installer. Shop shall only employ skilled workers who custom fabricate products similar to those required for this project and whose products have a record of successful in-service performance.

B. Flammability Tests: Solid surfacing products shall conform to Class A (Class I) surface burning characteristics as determined by testing identical products per UL 723 (ASTM E84) or another testing and inspecting agency acceptable to authorities having jurisdiction:

1. Flame Spread Index: 25 or less.

2. Smoke Developed Index: 450 or less.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver no components to project site until areas are ready for installation.

B. Store components indoors prior to installation.

C. Handle materials to prevent damage to finished surfaces.

1. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Panel Adhesives: VOC levels of panel adhesives used during construction shall not exceed 50 g/l VOC limit.

2. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2.02 SOLID POLYMER (SOLID SURFACE) MATERIALS

A. Manufacturer / Product: Wilsonart; *Solid Surface*.

B. Solid Polymer (Solid Surface) Panels: Cast, nonporous panels manufactured from acrylic resins, fire-retardant fillers and proprietary coloring agents, having minimum physical and performance properties noted in *Solid Surface* published product description.

1. Superficial damage to a depth of 0.010-inch shall be repairable by sanding and / or polishing.

2. Panel Thicknesses: 1/4-inch.

3. Panel Finish: Satin.

4. Colors: Refer to Section 01 8419.

C. Accessories:

1. Joint Adhesive: Manufacturer's standard adhesive to create inconspicuous, nonporous joints, with a chemical bond; color matched to panel color.

2. Seam Battens: Same material and thickness as shower panels to cover the panel joints and make the seam watertight.

3. Sealant: Standard mildew resistant, FDA / UL® recognized silicone sealant in color matched formulations.

2.03 CEMENTITIOUS BACKER UNITS

A. Cementitious Backer Unit (CBU): Panels formed in a continuous process of aggregated Portland Cement slurry with polymer coated glass-fiber mesh completely encompassing edges, back and front surfaces, with smooth formed edges and ends square cut; conform to ANSI A118.9.

1. Thickness: 5/8-inch.

2. Panel Size: Largest size possible for least number of joints.

3. Manufacturer / Product: US Gypsum; *Durock Cement Board*.

B. Fasteners: US Gypsum; *Durock Brand Screws.*

C. Joint Tape: US Gypsum; *Durock Brand Interior Joint Tape.*

D. Portland Cement Thin-Set Mortar: US Gypsum; *Durock Brand Latex-Modified Mortar Flexible Thin-Set High Performance.*

E. Moisture Barrier: Asphalt saturated sheathing paper conforming to Federal Specification UU-B-790a, Type 1, Style 2, Grade D, with 60 minute water resistance per ASTM D779, vapor permeable with Moisture Vapor Transmission (MVT) of 35 grams (minimum) per ASTM F1249 and ASTM E96 Procedure A.

1. Install moisture barrier over wall substrate or open framing behind CBU horizontally in continuous application without vertical joints, shingle-lap horizontal joints 4-inches.

2.04 SOLID POLYMER FABRICATION

A. Coordinate and confirm field dimensions and conditions affecting work prior to start of fabrication.

B. Fabricate wall cladding panels and fabrications in conformance with manufacturer's fabrication instructions.

1. Sand and finish bottom edge of shower panels smooth with eased edges match finish of panel face.

C. Fabricate components to greatest extent practical to sizes and shapes indicated on Drawings, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.

D. Provide solid polymer sheets in the largest sizes available and lay out for minimum number of joints.

E. Shop assemble work in largest sections possible that will fit through building openings.

F. Outside Corners and Trim: Fabricate to configuration shown on the Drawings.

1. Form joints between components using manufacturer's standard joint adhesive without conspicuous joints.

2. Rout and finish component edges to a smooth, uniform finish.

a. Rout exposed edges / corners to uniform profile shown on Drawings.

b. Sand and finish exposed edges smooth to match panel finish.

G. Provide cutouts for plumbing fittings and accessories using manufacturer's templates.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 09 8400

ACOUSTICAL WALL PANELS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Acoustical Wall Panels (AWP):

1. Wood Wool Acoustic Wall Panels.

1.02 ENVIRONMENTAL REQUIREMENTS

A. Maintain uniform temperature and maximum humidity as recommended by manufacturer prior to, during, and after acoustical panel installation.

1.03 PROJECT CONDITIONS

A. Sequence work to ensure acoustical panels are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

B. Install acoustical panels after interior wet work is dry and building temperature and humidity has been stabilized at normal levels for at least one week.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Panel Adhesives: VOC levels of panel adhesives used during construction shall not exceed 50 g/l VOC limit.

2.02 WOOD WOOL ACOUSTIC WALL PANELS

A. Wood Wool Acoustic Wall Panels:

1. Manufacturer / Product:

a. Baux; *Acoustic Wood Wool Panels*.

2. Construction: Made from recycled wood wool, cement and water.

3. Pattern: To be determined.

4. Color: To be determined.

5. Mounting Type: Glue directly to the wall.

   a. Adhesive: Type as recommended by the manufacturer for the substrate type it is being adhered to.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 09 9000

PAINTS AND COATINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Surface Preparation.

B. Field Applied Paints and Coatings.

C. Fire / Smoke Partition Marking and Identification.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM D1653 – Standard Test Methods for Water Vapor Transmission of Organic Coating Films.

2. ASTM D3363 – Standard Test Method for Film Hardness by Pencil Test.

C. International Building Code (IBC).

D. Master Painters Institute (MPI):

1. MPI Architectural Painting Specification Manual.

E. The Society for Protective Coatings (SSPC):

1. SSPC Steel Structures Painting Manual.

2. SSPC SP-1 – Solvent Cleaning.

3. SSPC SP-6 – Commercial Blast Cleaning.

1.03 QUALITY ASSURANCE

A. Single Source Responsibility: Paint products used for painting a given material / surface shall be manufactured by the same company.

B. Applicator Qualifications: Company specializing in performing the work of this section with a minimum of five years of successful experience.

1.04 PRE-INSTALLATION CONFERENCE

A. Prior to start of painting work, Contractor shall schedule a pre-installation conference at the job site to review the project conditions and construction requirements. Persons attending pre-installation conference shall include the Contractor, painter foreman, GWB installation foreman, Architect, Owner Representative(s).

1.05 REGULATORY REQUIREMENTS

A. Conform to applicable code for flame and smoke rating requirements for products and finishes.

B. The latex paint specified for gypsum wall board shall be the vapor retarder as required in Chapter 14 of the IBC. For this Project, the latex paint shall be a Class III vapor retarder.

C. Provide painted text using a letter stencil identifying fire-resistive partitions and smoke partitions as follows:

1. Locate in accessible concealed floor, floor-ceiling or attic space.

2. Letters shall be not less than 3-inch in height with a 3/8-inch stroke in color contrasting with the wall color.

3. Text: “FIRE AND / OR SMOKE BARRIER – PROTECT ALL OPENINGS”

4. Painted identification text shall be placed within 15 feet of each end of wall and not more than 30 feet on center horizontally along length of wall or partition.

1.06 DELIVERY, STORAGE AND PROTECTION

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and or as required by manufacturer's instructions and / or MPI MANUAL.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Environmental Requirements: Conform to MPI, product manufacturer and the following requirements; where conflicts exist, the manufacturer’s requirements shall govern:

1. Unless specifically pre-approved by the applied product manufacturer in writing, perform no painting work when the ambient air and substrate temperatures are below 50° F for both interior and exterior work.

2. Perform no exterior painting work unless environmental conditions conform to MPI and paint manufacturer's requirements or adequate weather protection and temporary heat is provided. Suitable weatherproof covering and sufficient heating facilities shall be in place to maintain minimum ambient air and substrate temperatures for 24 hours before, during and after paint application.

3. Perform no interior painting work unless adequate continuous ventilation and sufficient heating facilities are in place to maintain ambient air and substrate temperatures above minimum requirements for 24 hours before, during and after paint application.

4. Perform no painting work when the relative humidity is above 85% or when the dew point temperature is less than 5° F variance between the air / surface temperature.

5. Perform no painting work when the maximum moisture content of the substrate exceeds:

   a. 15% for wood.

   b. 12% for plaster and gypsum board.

   c. Concrete and Masonry: As required by manufacturer.

6. Concrete and masonry surfaces shall be installed at least 28 days prior to painting work and must be dry on both sides with moisture content and alkalinity at levels required by product manufacturer.

7. Apply paint only to dry, clean, properly cured and adequately prepared surfaces in areas where dust is no longer generated by construction activities such that airborne particles will not affect the quality of finished surfaces.

8. Perform no painting or decorating work unless a minimum lighting level of 50 foot candles is provided on surfaces to be painted.

1.08 WARRANTY

A. Contractor Guarantee: Upon completion of the work required by this section, the Contractor guarantees the application of the paints and coatings to be free from improper installation or workmanship for a period of two years. Contractor agrees to correct any failed coating promptly after notification by Owner and at no cost to the Owner.

B. Manufacturer Warranty – Masonry Clear Water Repellent: Manufacturer shall warrant the clear water repellent product for a period of 10 years against loss of water repellency of 1.0 ml or greater / 20 minutes. Manufacturer shall correct deficiencies promptly and without inconvenience or cost to the Owner.

C. Manufacturer Warranty – Masonry Anti-Graffiti Coating: Manufacturer shall warrant the anti-graffiti coating system for a period of 5 years against defects related to workmanship or material deficiency. Manufacturer shall correct deficiencies promptly and without inconvenience or cost to the Owner.

D. Contractor shall coordinate pre-approval of the materials to receive water repellent and anti-graffiti coating with manufacturer prior to application in accordance with manufacturer's warranty provisions.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Masonry Sealers: VOC levels of masonry sealers used during construction shall not exceed 100 g/l VOC limit.

2. Paints and Coatings: Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure, as shown in Table 5.504.4.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 5.504.4.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in Subsections 4.21, 4.36 and 4.37 of the 2007 California Air Resources Board Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 5.504.4.3 shall apply.

3. Aerosol Paints and Coatings: Aerosol paints and coatings shall meet the PWMIR Limits for ROC is Section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Section 94522(c)(2) and (d)(2) of *California Code of Regulations*, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8 Rule 49.

2.02 PAINTS AND COATINGS - GENERAL

A. Paint Manufacturers: Subject to compliance with requirements in this section, provide products of one of the following paint manufacturers.

1. Akzo Nobel Paints.

2. Behr.

3. Benjamin Moore.

4. Evonik Protectosil.

5. Glidden Professional.

6. Kelly Moore.

7. Parker Paint.

8. Pittsburg Paint.

9. PPG.

10. Rodda.

11. Sherwin-Williams.

12. Tnemec.

B. Paints and Coatings: Ready mixed, select products from the MPI Manual Manufacturer's Product List for Manufacturers listed above which installer has used on other projects and are known to provide excellent performance including:

1. A soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.

2. Good hiding characteristics.

3. Good flow and brushing properties.

4. Good mildew-resistance.

5. Capable of drying or curing free of streaks or sags.

C. Certain manufacturer's products may not provide adequate hiding ability with the number of coats specified. Contractor may be required to provide additional coats at no additional cost if products are selected that do not provide adequate hiding ability.

2.03 ACCESSORY MATERIALS

A. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified; commercial quality.

B. Patching Material: Latex-based filler.

C. Sealant: Silicon-latex acrylic sealant as specified in Section 07 9000.

2.04 SCHEDULE – PAINT SYSTEMS (WORK IS MPI PREMIUM GRADE)

A. Materials / surfaces scheduled hereinafter shall be painted in accordance with designated MPI or proprietary systems and product requirements.

1. Sheen on finish coats shall be as selected by Architect from manufacturer's paint sheen samples.

2. Use the same manufacturer for each coat specified for a given system, do not intermix different manufacturer's products within the same paint system unless specifically approved by manufacturer(s) and products are known to be compatible for use together.

a. Where primer is applied by others:

1) Select paint system compatible with primer installed by others.

2) Test compatibility and adhesion of proposed paint products over primer prior to application.

b. Paint failure due to incompatibility between different manufacturer's products are Contractor's responsibility to correct.

B. Concrete Masonry Units (CMU): Finish all surfaces

1. Exterior: Proprietary System

a. First Coat: Clear Water Repellent, Protectosil *Aqua-Trete EM* or approved; clear, colorless water-borne, vapor-permeable.

b. Second Coat: Anti-Graffiti Coating: Protectosil *Antigraffiti* or approved; clear, colorless, organofluorosilane, water borne.

c. Third Coat: Anti-Graffiti Coating: Protectosil *Antigraffiti* or approved; clear, colorless, organofluorosilane, water borne.

1) Surface preparation and application shall conform to manufacturer's instructions. Schedule inspection and testing of application with manufacturer's representative in conformance with manufacturer's warranty provisions.

2) Protect glass and metal from overspray.

d. Protection: Protect adjacent finish surfaces and property from contact with water repellent and anti-graffiti coating during application; do not allow to run down onto glass or other finish surfaces.

e. Warranty: 10 years, refer to warranty requirements in Part 1 of this section.

C. Ferrous Metal: Finish every surface.

1. Exterior – MPI EXT 5.1G.

a. Shop Prime Coat: Damaged shop primer requires only the damaged / bare spots to be prepared in accordance with SSPC SP-6 Commercial Blast Cleaning and touch up of bare areas with MPI Product #20 Epoxy Zinc Rich Primer.

b. First Coat: High Build Epoxy, MPI Product #108.

c. Second Coat: Polyurethane, MPI Product #72.

d. Third Coat: Polyurethane, MPI Product #72.

e. Application: Spray.

f. MPI Gloss Level 5.

2. Interior: MPI INT 5.1G.

a. Shop Prime Coat: Damaged shop primer requires touch up of bare areas with MPI Product #108 High Build Epoxy.

b. First Coat: High Build Epoxy, MPI Product #108, fast curing.

c. Second Coat: Polyurethane, MPI Product #72, fast drying, with minimum Pencil Hardness of 4H per ASTM D3363.

d. Third Coat: Polyurethane, MPI Product #72, fast drying, with minimum Pencil Hardness of 4H per ASTM D3363.

e. Application: Spray.

f. MPI Gloss Level 5.

3. Interior Hollow Metal Doors and Frames: MPI INT 5.1G.

a. Factory Prime Coat: Specified in Section 08 1100.

1) Damaged factory primer requires touch up of bare areas with MPI #101 Epoxy Primer.

b. First Coat: High Build Epoxy, MPI Product #108, fast curing.

c. Second Coat: Polyurethane, MPI Product #72, fast drying, with minimum Pencil Hardness of 4H per ASTM D3363.

d. Third Coat: Polyurethane, MPI Product #72, fast drying, with minimum Pencil Hardness of 4H per ASTM D3363.

e. Application: Spray.

f. MPI Gloss Level 5.

D. Galvanized Steel: Finish every surface.

1. Exterior: MPI EXT 5.3D.

a. First Coat: Vinyl Wash Primer, MPI Product #80.

b. Second Coat: Epoxy, MPI Product #101.

c. Third Coat: Polyurethane, MPI Product #72.

d. Shop / factory primed or painted metal requires only touch up of bare spots with primer and second and third coats.

e. Application: Spray.

f. MPI Gloss Level 5.

2. Exterior Hollow Metal Doors and Frames – MPI EXT 5.3D (modified)

a. Factory Prime Coat: Damaged factory primer requires touch up of bare areas with MPI #108 High Build Epoxy.

b. First Coat: High Build Epoxy, MPI Product #108, fast curing.

c. Second Coat: Polyurethane, MPI Product #72, fast drying, with minimum Pencil Hardness of 4H per ASTM D3363.

d. Third Coat: Polyurethane, MPI Product #72, fast drying, with minimum Pencil Hardness of 4H per ASTM D3363.

e. Application: Spray.

f. MPI Gloss Level 5.

3. Interior: MPI EXT 5.3D (modified)

a. Shop Prime Coat: Damaged shop primer requires touch up of bare areas with MPI #108 High Build Epoxy.

b. First Coat: High Build Epoxy, MPI Product #108, fast curing.

c. Second Coat: Polyurethane, MPI Product #72, fast drying, with minimum Pencil Hardness of 4H per ASTM D3363.

d. Application: Spray.

e. MPI Gloss Level 5.

E. Glu-Laminated Beams:

1. Interior: MPI INT 6.1J.

a. First Coat: Semi-Transparent Stain, MPI Product #90.

b. Second Coat: Polyurethane Varnish, MPI Product #56.

c. Third Coat: Polyurethane Varnish, MPI Product #56.

d. Fourth Coat: Polyurethane Varnish, MPI Product #56.

e. Application: Spray.

F. MDF:

1. Interior: MPI INT 6.4A.

a. First Coat: Shop applied Alkyd Primer / Sealer, MPI Product #39.

b. Second Coat: HIPAC Latex, MPI Product #140.

c. Third Coat: HPAC Latex, MPI Product #140.

d. Application: Spray and back brush.

e. MPI Gloss Level 4.

G. PVC Pipe Downspouts:

1. Exterior: MPI EXT 6.8A.

a. First Coat: Water Base Bonding Primer, MPI Product #17.

b. Second Coat: 100% Acrylic Latex, MPI Product #15.

c. Third Coat: 100% Acrylic Latex, MPI Product #15.

d. Application: Spray or brush.

e. MPI Gloss Level 3.

H. Gypsum Board:

1. Interior: MPI INT 9.2.A.

a. First Coat: Waterborne primer / sealer, MPI Product #50.

b. Second Coat: Interior latex, MPI Product #43.

c. Third Coat: Interior latex, MPI Product #43.

d. Application: Spray and backroll.

e. MPI Gloss Level: MPI Gloss Level 4 or as selected by Architect for specific use areas.

2. Interior Epoxy (Where noted on Drawings): MPI EXT 9.2F.

a. First Coat: Latex Primer Sealer, MPI Product #50.

b. Second Coat: Epoxy-Modified Latex, MPI Product #115.

c. Third Coat: Epoxy-Modified Latex, MPI Product #115.

d. Application: Spray and backroll.

e. MPI Gloss Level: MPI Gloss Level 4 or as selected by Architect for specific use areas.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 10 1400

INTERIOR SIGNAGE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Interior Building Signage:

1. Room ID.
2. Restroom.
3. Maximum Occupancy.
4. Evacuation Map.
5. Door Pack.

1.02 SCOPE OF WORK

A. Field verify site conditions and dimensions affecting signage installation and coordinate with signage design and installation.

B. Provide final design for signage based on the schematic level signage design shown in the Contract Documents.

C. Provide signage shop drawings showing the final design for each sign type required for the project.

1.03 PERFORMANCE REQUIREMENTS

A. ADA Accessible Signage shall comply with to ICC / ANSI A117.1 Chapter 7. Signage shall comply with IBC, Chapters 9, 10 and 11 including color requirements.

1. Character Proportion: Letters and numbers on signs shall have a width-to-height ratio between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10.
2. Color Contrast: Characters and symbols shall contrast with their background – either light characters on a dark background or dark characters on a light background.
3. Raised Characters / Symbols: Letters, numbers and symbols shall be raised 1/32-inch minimum; letters and numbers shall be sans serif characters and have a height between 5/8-inch and 2-inches.

4. Braille: Grade 2 with accompanying raised text.

1.04 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM B209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

2. ASMT E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

C. International Code Council / American National Standards Institute (ICC / ANSI):

1. ICC / ANSI A117.1 – Accessible and Usable Buildings and Facilities.

D. International Building Code (IBC).

E. Underwriters Laboratory, Inc. (UL):

1. UL 723 – Standard for Test for Surface Burning Characteristics of Building Materials.

1.05 QUALITY ASSURANCE

A. Signage Fabricator Qualifications: Not less than 5 years of successful experience in fabrication and installation of signage similar in type and scope to those required for this project, with record of successful fabrication and installation and sufficient capacity to produce and install the required signage within the project schedule.

1. Obtain signs from one source and a single fabricator.

2. The signage fabricator shall have broad in-house knowledge, diverse shop and field experience, flexibility, coordination ability, skilled craftsmen and a physical plant necessary to produce quality products equivalent to or superior to similar type products produced by other signage fabricators in the same area of expertise.

3. Installers shall be employees of fabricator, trained and experienced in signage installation using best workmanship.

4. Upon request, provide list of at least five (5) recently completed projects along with names and contact information for project Owner and Architect

B. Workmanship / Quality: Signage fabrications shall employ the best fabrication practices common to the signage industry and to the highest standards of workmanship. Fabrications shall be free of imperfections in material and workmanship and suitable for its intended use and location.

1.06 REGULATORY REQUIREMENTS

A. Conform to applicable code and ICC / ANSI A117.1 for requirements for the physically handicapped.

1.07 FIELD CONDITIONS

A. Conduct inspection of conditions on project site and review of signage locations.

B. For signage that must fit closely within an architectural detail, field measure and adjust sign to fit in the space.

C. Field verify / measure dimensions and review site conditions prior to submitting shop drawings.

D. Coordinate signage work with Contract Drawings, change directives and as-built conditions.

1.08 DELIVERY, STORAGE AND HANDLING

A. Package signage for protection during shipping, storage and installation.

B. Products should remain in original packaging until installation. Store products in a dry, indoor location.

1.09 WARRANTY

A. Provide two (2) year warranty covering the following:

1. Signage shall be warranted against defects in materials and workmanship. Promptly correct at no expense to the Owner any defective signage resulting from defective or inferior materials or workmanship.

2. Defective materials and workmanship include, but are not limited to, the following: Delaminating of sign parts or finishes, cupping, warping or dishing of surfaces, bubbling, crazing, chalking, or fading of finishes, rusting or corrosion of parts, installations that are not plumb or securely fastened, use of incorrect finishes or materials, or unapproved deviations from the Contract Documents or approved shop drawings.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Adhesives: VOC levels of adhesives used during construction shall not exceed 50 g/l VOC limit.

2. Graphic Arts Coatings (Sign Paints): VOC levels of graphic arts coatings used during construction shall not exceed 500 g/l VOC limit.

2.02 MATERIALS

A. Aluminum: Conform to ASTM B209, 5000 series, 6061-T6 and 6063 alloys selected for best performance for each sign application.

1. Materials provided shall be free of surface blemishes such as pitting, roller marks, rolled trade names and surface roughness.

B. Acrylic Sheet: Clear, plexiglass extruded acrylic sheet, non-glare surface.

1. Manufacturers / Products:

a. Acrylite FF.

b. Lucite CP.

c. Optix.

C. Photopolymer Sheet:

1. Manufacturer / Product: Nova Polymers *NovAcryl PT Series* is the basis of design and the standard of quality, function and appearance required for this project.

2. Photopolymer Sheet: 0.032-inch thick moisture resistant, non-glare interior nylon photopolymer bonded to ultraviolet resistant, clear PETG (polyethylene terephthalate glycol-modified) sign base, single piece construction. Flame spread/smoke developed rating less than 75/120, tested to ASTM E84 and UL 723.

D. Hot Stamping Foil: Heat activated color pigmented foil for hot stamping color onto photopolymer sheet; use foil recommended by photopolymer sheet manufacturer for compatibility. Manufacturer / Product: Nova Polymers *Hot Stamping Foils.*

E. Paint: Provide paint manufactured specifically for signage painting with excellent color and gloss retention and surface hardness. Use the same manufacturer for each coat specified for a given system.

1. Manufacturers: Matthews Paint is the basis of design and the standard of quality, function and appearance required for this project. The following manufacturers are acceptable provided they can provide products that are equal to or exceed the products provided by Matthews Paint.

a. Matthews Paint (basis of design).

b. Sherwin Williams Genesis.

c. AkzoNoble.

2. Paint System: Provide the following paint system for Acrylic surfaces:

a. Acrylic, PETG and PVC:

1) Surface Preparation / Cleaning: As recommended by paint manufacturer.

2) Prime Coat: Matthews *74 777SP Tie Bond Adhesive* applied at 1.5 – 2.0 mils DFT.

3) Top Coats: 2 coats of Matthews *MPC 100 Acrylic Polyurethane (MAP)* applied at 2 mils DFT.

4) Clear Coats: 2 coats of Matthews *MAP Clear* applied at 2.0 mils DFT, gloss as selected by Architect.

5) Application: Spray.

6) Gloss: As selected by Architect.

F. Vinyl Film: Premium quality, 2.0 mil, cast vinyl, opaque with high performance, permanent, clear pressure-sensitive acrylic adhesive.

1. Manufacturers / Products:

a. Avery Dennison; *SC 900 Super Cast Series.*

b. Oracal; *951.*

c. 3M Company; *Scotchcal Series 7125.*

G. Double-Side Adhesive Tape: 3M Company; *VHB Tape.*

H. Fasteners: Tamper proof mechanical fasteners of sufficient length to secure to backing in the wall.

2.03 FABRICATION – GENERAL

A. General: Fabricate interior signs from new materials using the best fabrication procedures, practices and workmanship that is common to the signage industry.

B. Metal Fabrications: Fabrication shall be smooth, free from abrasion, burrs, sharp edges, tool marks, visible welds, exposed fasteners, or similar defects. Corners, reveals, and joints shall be accurately milled to match adjoining pieces and shall be fabricated so that they are straight and/or configured to match the approved shop drawings.

1. Welds: External welds are to be continuous, filled, ground and sanded smooth so the finish seams are not apparent when the unit is completed.

2. There shall be no visible seams or fasteners. Joints and connections shall be finished flush, true and smooth without defects. Finish welds on exposed surfaces, and spot welds shall be imperceptible in the finished work. No gaps, light leaks, oil-canning or waviness will be acceptable.

3. Fabricate for smooth and even appearance, free from imperfections and disfigurement including pitting, warping, waviness, bulges, oil-canning or other physical deformities caused by such things as welding, material being too thin, fasteners, welds not being ground smooth, or any other problems not specifically mentioned here.

C. Painting: Conform to paint manufacturer's requirements for surface preparation / cleaning and application.

1. Paints shall be evenly applied without pinholes, scratches, orange peeling, application marks and other imperfections. Workmanship, finishes and formation of letters shall conform to the highest standards of the trade.

2. Color breaks on the sign surface are to be sharp, without serration or color bleed. Remove paint drops, splatters, and over sprays.

3. The cured paint surface shall have a uniform finish that accurately matches the specified color, gloss or approved color samples.

D. Typography and Artwork: Conform to best industry practices and the following:

1. Prepare original artwork for each sign. Artwork digital format files will be supplied only where indicated in the Contract Documents. Computer graphic files will be supplied by the Architect in the most recent version of Adobe Illustrator AI, PDF, or EPS formats.

2. Use the exact typeface specified and shown on approved shop drawings. Provide copy layouts and text for signs; provide enlarging and reducing as required for layout.

3. Letterforms, logos, patterns and other graphics shall be applied true to artwork / typeface and have clean edges and corners.

a. Letterforms having rounded positive or negative corners, nicked, cut or ragged edges will not be acceptable.

b. Letterforms shall be aligned to maintain a baseline parallel to the sign format and margins shall be maintained as per the Contract Documents.

c. Photo silk-screened typography and graphics are to be sharp, without serrated or irregular edges, and exactly true to the letter style and design form.

d. For the best results, silk-screening on an acrylic polyurethane coating should be done within 72 hours of the coating application.

E. Cut Vinyl: Conform to manufacturer's requirements for surface cleaning and application.

1. Die cutting shall be executed in such a manner that all edges and corners are true and clean.

2. Adhesion to substrate shall be permanent.

F. There shall be no visible labels, manufacturer's or otherwise, code permitting, on the completed signs. If labels are required, a sample label and intended location must be included with submittal for Architect's review.

2.04 INTERIOR SIGNAGE TYPES

A. Signs conforming to IBC and ICC / ANSI A117.1 requirements consisting of unframed acrylic plaques with tactile text (letters and numbers), Braille characters and tactile graphics (universal symbols).

B. Sign Type C2 – Room ID:

1. Signage Type: Sign panel.

2. Overall Size: 8.5-inch wide x 6-inch high.

3. Sign Construction (Panel): 3 mm thick photopolymer sheet with raised text and Grade 2 braille adhered to 1/8-inch acrylic backer panel.

a. ADA compliant raised copy and braille.

b. Finish: Paint the back face of photopolymer sheet.

c. Adhere sign panel layers with a clear double-faced tape.

4. Text: Raised 0.032-inch above sign face.

a. Typography: Interstate Regular and Interstate Bold.

b. Apply color to raised text with hot stamping foil or paint.

5. Opaque Film Back (if sign is mounted on glass): White cut vinyl 1/4-inch smaller than sign panel; installed on back side of glass behind sign panel.

6. Colors:

   a. Sign Panel: TBD.

   b. Raised Text: White.

   c. Sign Panel Face Overcoat: Apply clear coat.

7. Installation: Adhere to wall using tamper proof mechanical fasteners and 3M *VHB* double-faced tape.

C. Sign Type D1 – Restroom ID (Sign Panel):

1. Signage Type: Sign panel.

2. Overall Size: 8.5-inch wide x 10-inch high.

3. Sign Construction (Sign Panel): 4.8 mm thick photopolymer sheet with raised text and symbol, and Grade 2 braille.

   a. ADA compliant raised copy, symbol and braille.

   b. Finish: Paint the back face of photopolymer sheet.

4. Text: Raised 0.032-inch above sign face.

   a. Typography: Interstate Regular

   b. Apply color to raised text and symbol with hot stamping foil or paint.

5. Colors:

   a. Sign Panel: TBD.

   b. Raised Text and Symbol: White.

   c. Sign Panel Face Overcoat: Apply clear coat.

6. Installation: Adhere to wall using tamper proof mechanical fasteners and 3M *VHB* double-faced tape.

D. Sign Type D5.0 – Informational (Sign Panel)

1. Sign Type: Sign panel.

2. Overall Size: 12-inch wide x 6-inch high.

3. Sign Construction: 1/4-inch thick acrylic sheet.

   a. Finish: Paint on back side of panel.

4. Text: Painted on back face.

    a. Typography: Interstate Regular.

5. Opaque Film Back (if sign is mounted on glass): White cut vinyl 1/4-inch smaller than sign panel; installed on back side of glass behind sign panel.

6. Colors:

    a. Sign Panel: TBD.

    b. Text: White.

7. Installation: Adhere to wall using tamper proof mechanical fasteners and 3M *VHB* double-faced tape.

E. Sign Type D5.1 – Informational (Sign Panel)

1. Sign Type: Sign panel.

2. Overall Size: 12-inch wide x 9-inch high

3. Sign Construction: 1/4-inch thick acrylic sheet.

    a. Finish: Paint on back side of panel.

4. Text: Painted on back face.

    a. Typography: Interstate Regular

5. Opaque Film Back (if sign is mounted on glass): White cut vinyl 1/4-inch smaller than sign panel; installed on back side of glass behind sign panel.

6. Colors:

    a. Sign Panel: TBD

    b. Text: White

7. Installation: Adhere to wall using tamper proof mechanical fasteners and 3M *VHB* double-faced tape.

F. Sign Type D6 – Exit Sign With Braille (Sign Panel)

1. Sign Type: Sign panel.

2. Overall Size: 6-inch wide x 6-inch high.

3. Sign Construction: 4.8 mm photopolymer sheet with raised text and Grade 2 braille.

a. ADA compliant raised copy, symbol and braille.

b. Finish: Paint the back face of photopolymer sheet.

4. Text: Raised 0.032 inch above sign face.

a. Typography: Interstate Regular.

b. Apply color to raised text and symbol with hot stamping foil or paint.

5. Opaque Film Back (if sign is mounted on glass): White cut vinyl 1/4-inch smaller than sign panel; installed on back side of glass behind sign panel.

6. Colors:

a. Sign Panel: TBD.

b. Raised Text: White.

c. Sign Panel Face Overcoat: Apply clear coat.

7. Installation: Adhere to wall using tamper proof mechanical fasteners and 3M *VHB* double-faced tape.

8. Installation: Adhere to wall using tamper proof mechanical fasteners and 3M *VHB* double-faced tape.

G. Sign Type D9 – Evacuation Map (Sign Panel):

1. Sign Type: Sign panel with framed insert.

2. Overall Size: 20.5-inch wide x 16.75-inch high.

a. Clear Insert Area: 18-inch wide x 12-inch high.

3. Sign Construction: 1/8-inch acrylic sheet.

a. Insert Area Frame: Surface-mounted 12-inch x 18-inch aluminum bar stock frame with tight butt joints; rout pockets to accommodate 0.063-inch non-glare acrylic sheet. Secure aluminum frame to acrylic backer panel with 3M *VHB* tape.

b. Finish: Paint on back side of panel.

4. Text: Painted on back face.

a. Typography: Interstate Regular

5. Colors:

   a. Sign Panel (except non-glare acrylic): TBD.

   b. Text: White.

   c. Sign Face Overcoat (except non-glare acrylic): Clear coat.

6. Paper Inserts: Evacuation map insert provided by Owner.

7. Installation: Adhere to wall using tamper proof mechanical fasteners and 3M *VHB* double-faced tape.

H. Door Pack (Cut Vinyl Letters):

1. Signage Type: Cut vinyl letters.

2. Overall Size: 24-inch H x 24-inch L.

3. Text Copy: TBD.

4. Color: White.

5. Typography: TBD.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 10 1419

DIMENSIONAL LETTER SIGNAGE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Exterior Dimensional Letter Building Signage.

1.02 QUALITY ASSURANCE

A. Qualifications of Sign Fabricator: A sign company which is regularly engaged in the fabrication and installation of specialty signs of the types specified and has been in business for a period of at least five (5) years. Submit a list of installations and other substantiating data that demonstrates experience in sign work similar to that indicated on drawings and in these specifications. Obtain signs from one source and a single manufacturer. Sign warranty: Minimum 5 years.

PART 2 - PRODUCTS

2.01 EXTERIOR DIMENSIONAL LETTER BUILDING SIGNAGE

A. Exterior Dimensional Building Letters:

1. Exterior Building letters consist of cast metal letters. Letters are post mounted on a metal canopy at the building entrance.

2. Dimensional Letters:

   a. Material: Cast Metal Letters.

   b. Finish: Black Anodized Aluminum.

   c. Letter Thickness: 1-1/2-inch deep (approx.).

3. Text and Size:

   a. Text: Refer to Drawings for message.

   b. Text Height: 8-inches tall.

4. Font:

   a. Letter Style: To be determined.

   b. Type Code: Letters shall be upper case.

5. Mounting: Standoff mounting onto wall / exterior cladding system. Refer to Drawings.

6. Manufacturer: Similar to Gemini cast metal letters.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 10 1453

TRAFFIC SIGNAGE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Site Traffic Signage.

1.02 SCOPE OF WORK

A. Provide traffic signage meeting Federal, local and state requirements. Not all required signage is listed in this specification section. Signs listed are for standard of quality requirements.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM C94 – Standard Specification for Ready-Mixed Concrete.

PART 2 - PRODUCTS

2.01 TRAFFIC SIGNS

A. Manufacturers:

1. Zumar Industries (specified).

2. Traffic Safety.

3. Substitutions: Refer to Section 01 6000 for substitution procedures and requirements.

B. Sign Construction: 0.80 aluminum sheet faced with engineer grade reflective covering. Graphics shall comply with California State Department of Transportation requirements for traffic signage.

C. Sign Types: Refer to Drawings for locations.

1. ADA Parking Sign: Zumar R7-801 1218 80EG, State Disabled Parking, 12-inch x 18-inch size.

2. Sign at Van Accessible ADA Parking Stalls: Zumar R7-801VA 1218 80EG, State Disabled Parking with Van Accessible, 12-inch x 18-inch size.

3. Stop Sign: Zumar *R1-1* STOP Sign, 24-inch x 24-inch size.

4. No Parking Fire Lane Sign: Zumar *R7* NO PARKING FIRE LANE sign, 12-inch x 18-inch size.

5. No Parking Sign: Zumar *R7-6 1218 80EG* NO PARKING LOADING ZONE sign, 12-inch x 18-inch size.

6. Do Not Enter Sign: Zumar *R5-1* DO NOT ENTER sign, 24-inch x 24-inch size.

7. Custom Sign: 12-inch x 18-inch size, white letters on blue background with the following text: "ACCESSIBLE PASSENGER LOADING ZONE" and with white handicap symbol at top.

8. Custom Sign: 12-inch x 18-inch size, black letters on white background with the following text: "RESERVED PARKING CARPOOL / VANPOOL VEHICLES ONLY"

D. Posts: 2-inch square galvanized tube steel posts, length as required for 5 foot mounting height to bottom of sign with 36-inch bury in solid concrete.

E. Concrete: Conform to ASTM C94; Normal Portland Cement, 3,000 psi strength at 28 days, 4-inch slump; 3/4-inch nominal sized coarse aggregate.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 10 2600

CORNER GUARDS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Corner Guards:

1. Aluminum Corner Guards (CG).

1.02 PROJECT CONDITIONS

A. Materials must be acclimated in an environment of 65 to 75 degrees F for at least 24 hours prior to beginning installation.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Multipurpose Construction Adhesives: VOC levels of multipurpose construction adhesives used during construction shall not exceed 70 g/l VOC limit.

2.02 ALUMINUM CORNER GUARDS

A. Aluminum Corner Guards (CG):

1. Manufacturer / Product: Construction Specialties, Inc. *ACO-8* is the basis of design and the standard of quality, function, performance and appearance required for this project. The following manufacturers may provide corner guards that meet or exceed this standard.

a. Construction Specialties, Inc. (Basis of Design, Specified).

b. InPro.

c. Pawling.

2. Size: 3-1/2-inch x 3-1/2-inch legs.

3. Length: As shown on Drawings.

4. Material: Aluminum 0.063-inch thick.

5. Corner Configuration / Angle: As shown on Drawings.

6. Attachment: Mounted with construction adhesive and stainless steel screws.

    a. Special Project Requirement: Provide tamper resistant stainless steel screws.

7. Locations: Where indicated on the Drawings.

8. Color / Finish: Clear anodized aluminum.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 10 2800

TOILET AND MISCELLANEOUS ACCESSORIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Contractor Furnished / Contractor Installed Toilet and Miscellaneous Accessories.

B. Owner Furnished / Owner Installed Toilet Accessories.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. Americans with Disabilities Act (ADA).

C. American National Standards Institute (ANSI):

1. ANSI Z97.1 – American National Standard for Safety Glazing Materials Used in Buildings – Safety Performance Specifications and Methods of Test.

D. International Building Code (IBC).

E. International Code Council (ICC):

1. ICC / ANSI A117.1 - Accessible and Usable Buildings and Facilities.

PART 2 - PRODUCTS

2.01 CONTRACTOR FURNISHED / CONTRACTOR INSTALLED (CFCI) TOILET AND MISCELLANEOUS ACCESSORIES

A. Manufacturers: Products listed by various manufacturers below are the basis of design and the standard of quality and function required for this project. Where Bobrick is specified below, products by the following manufacturers that meet or exceed this standard of quality and function are also acceptable:

1. Bobrick (specified, basis of design)

2. Parker.

3. Bradley Corp.

B. Patient Area Toilet Room Accessories:

1. Patient Area Toilet Room Accessories shall be installed using tamper-resistant fasteners.

2. Mirrors: Behavioral Health Products *FM760 Framed Mirror.*

   a. Size: 18-inches wide by 24-inches tall.

   b. Material: Stainless Steel, Architectural No. 8 Finish.

   c. Frame Finish: Powder Coated White.

3. Grab Bars: Bradley *Model SA70*, 1-1/2-inch Diameter 18 Gauge Stainless Steel Grab Bars.

   a. Lengths and configuration shown on the Drawings.

   b. Finish: Satin finish with peened gripping surface.

4. Surface Mounted Toilet Paper Dispenser: Cascade Specialty Hardware, *Safety Toilet paper Holder Model C-400:*

   a. Finish: White Powder Coated.

5. Surface Mounted Paper Towel Dispenser: Bobrick B-2620 – Surface Mounted Paper Towel Dispenser.

   a. Finish: Stainless steel, No. 4 finish (satin).

   b. Install conjunction with Surface Mounted Paper Towel Dispenser Cover.

6. Surface Mounted Paper Towel Dispenser Cover: Securing Hospitals.com – *817-S45 SR Paper Towel Dispenser Cover*.

   a. Finish: White Powder Coated.

   b. Install conjunction with Surface Mounted Paper Towel Dispenser.

7. Surface Mounted Foam Soap Dispenser and Hand Sanitizer Dispenser: Behavioral Health Products *SD750 Soap Dispenser*.

   a. Material: Metal.

   b. Finish: Powder Coated.

8. Shower Curtain Track, Carriers and Shower Curtain:

   a. Track: Inpro *Clickeze Optitrac Cubicle Track* with end caps, clear anodized finish.

   b. Carriers: Inpro *CE6026-LR Pop-Out Carrier*, White.

   c. Curtain: COVOC Corporation *Shower Shield*, color to be selected from the manufacturer's full range of color options.

9. Security Towel Hook: Bradley *Model SA36 – Front Mounted*, 14 Gauge Stainless Steel.

C. Administration Area Toilet Room Accessories:

1. Grab Bars: Bobrick *Series B-6806.99 1-1/2-inch Diameter Stainless Steel Grab Bars with Snap Flange*; configurations as shown on Drawings.

   a. Lengths and configuration shown on the Drawings.

   b. Finish: Satin finish with peened gripping surface.

2. Mirror: Bobrick, *B165 Series*, Mirror with welded stainless steel angle frame.

   a. Provide with laminated safety glass conforming to ANSI Z97.1.

   b. Size: As shown on the Drawings.

3. Surface Mounted Toilet Paper Dispenser: Bobrick, *B2888*, Stainless Steel, Multi-Roll.

4. Sanitary Napkin Disposal: Bobrick, *B254*, Stainless Steel.

5. Toilet Seat Cover Dispensers: Bobrick, *B221*, Stainless Steel.

6. Semi-Recessed Paper Towel Dispenser: GP *enMotion, 8-inch Recessed Automated 59466A*. Stainless Steel Finish.

7. Surface Mounted Soap and Sanitizer Dispenser: GP *enMotion, 8-inch Automated 52054*. Stainless Steel Finish.

8. Utility Shelf with Mop and Broom Holder: Bobrick *B-236 x 34 Utility Shelf with Mop / Broom Holders and Rag Hooks.*

2.02 OWNER FURNISHED / OWNER INSTALLED (OFOI) TOILET ACCESSORIES

A. Patient Area Toilet Room Accessories:

1. The Owner will contract with an Operator for the facility. The Operator will be responsible for the following toilet room accessories and will not be in the contract. Contractor to provide solid backing for these accessories. Coordinate with the Operator.

2. Surface Mounted Sanitary Napkin Disposal.

3. Surface Mounted Toilet Seat Cover Dispenser.

4. Surface Mounted Trash Receptacles.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 10 4400

FIRE EXTINGUISHERS AND CABINETS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Fire Extinguishers.

B. Mounting Brackets.

C. Fire Extinguisher Cabinets.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. Underwriters Laboratories Inc. (UL):

1. ANSI / UL 299 – Dry Chemical Fire Extinguishers.

2. ANSI / UL 711 – Rating and Fire Testing of Fire Extinguishers.

PART 2 - PRODUCTS

2.01 FIRE EXTINGUISHER MANUFACTURERS

A. Available Manufacturers: Subject to conformance with the requirements of this section, manufacturers offering products that may be provided for this project include, but are not limited to, the following:

1. Badger Fire Protection, Inc.

2. J.L. Industries, Inc.

3. Kidde Fire Extinguishers.

4. Larsen's Manufacturing Company.

5. Potter-Roemer.

2.02 FIRE EXTINGUISHERS

A. Extinguishers: Dry chemical, multi-purpose, 5-pound capacity.

1. Minimum UL Rating: 2A:10B:C.

2. Tested to ANSI / UL 711 and ANSI / UL 299 requirements.

3. Extinguisher Finish: Steel, Red Enamel, Factory Finish.

4. Extinguishers shall be fully charged.

B. Mechanical and Electrical Room Extinguishers: Dry chemical, multi-purpose, 10-pound capacity.

1. Minimum UL Rating: 4A:80-B:C.

2. Wall hook mounted.

C. Kitchen Extinguisher: Class K rated wet chemical.

1. Cabinet Mounted.

D. Extinguisher Mounting Bracket: Plated steel bracket for mounting on wall, with quick release metal retaining strap to hold extinguisher securely to bracket.

1. Provide for extinguishers in Mechanical and Electrical Rooms.

E. Labels: Attach manufacturer's standard metal foil label to cylinder, with printing and graphics indicating information and instructions required by local authorities having jurisdiction.

2.03 FIRE EXTINGUISHER CABINET MANUFACTURERS

A. Manufacturer: Subject to conformance with the requirements of this section, manufacturers offering products that may be provided for this project include the following:

1. J.L. Industries, Inc.

2. Kidde Fire Extinguishers.

3. Larsen's Manufacturing Company.

4. Potter-Roemer.

2.04 FIRE EXTINGUISHER CABINETS

A. Recessed Fire Extinguisher Cabinets: Potter-Roemer *DC-1704-F* or similar, sized to fit required extinguisher, recessed maximum amount allowed by wall framing.

1. General Construction: 12 gauge steel construction.

2. Cabinet: Cold-rolled steel, factory-applied powder coat paint finish, white, rolled edges (no square edges).

3. Door / Trim: Cold-rolled steel, factory-applied powder coat paint finish, white.

a. Projection: Flush with face of cabinet.

b. Configuration: Solid Face, no glass.

4. Door Hardware:

a. Continuous hinge, allowing 180-degree door swing.

b. Adjustable roller catch.

c. Handle Pull: No handle pull. Provide with Cylinder Lock keyed to the building master key.

5. Lettering: Etched / Engraved Letters in Metal Door.

a. Legend: "FIRE EXTINGUISHER".

b. Lettering Color: Red, or as required by Fire Marshal

c. Placement: Vertical, on hinge side of door, place on door; comply with requirements of authorities having jurisdiction.

6. At Fire Rated Walls: Provide cabinet that conforms to the requirements of the fire listing for the wall.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 10 5123

PLASTIC LAMINATE LOCKERS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Plastic Laminate Lockers.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American National Standards Institute (ANSI):

1. ANSI 208.1

C. Hardwood Plywood Manufacturer's Association (HPMA).

D. Underwriters Laboratory, Inc. (UL).

1.03 PROJECT CONDITIONS

A. Field Measurements: Verify dimensions in areas of installation by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating units without field measurements. Coordinate supports, adjacent construction, and wall openings to ensure actual dimensions correspond to Established Dimensions.

1.04 DELIVERY, STORAGE AND PROTECTION

A. Protect locker finish and adjacent surfaces from damage.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Adhesives: VOC levels of adhesives used during construction shall not exceed 50 g/l VOC limit.

2. Particle Board: Maximum formaldehyde emissions from particle board used during construction shall not exceed 0.09 PMM limit.

2.02 PLASTIC LAMINATE LOCKERS

A. Manufacturer / Model: Ideal Products, Inc.; *Ideal 2000 Series.*

1. Overall Height: 72-inches or as shown on Drawings.

2. Width: 15-inches or as shown on Drawings.

3. Depth: 18-inches or as shown on Drawings.

4. Locker Arrangement: As shown on Drawings.

5. Locker Interior:

a. Interior vertical surfaces of sides and back panel are finished with 6 mil frosty white vinyl.

b. Interior horizontal surfaces of shelves, tops and bottoms are finished with black thermal-fused melamine.

c. Locker frame constructed of 48 lb. industrial grade particle board core ANSI A208.1, grade 1-M-2, 45 (Sides = 5/8-inch, Shelves = 3/4-inch, Back = 1/4-inch).

d. Frame edged for 2000 Series with high pressure plastic laminate 0.032-inch thickness, vertical grade (SE) or .5mm PVC, polyvinyl chloride thermal glued tape to match plastic laminate (PVC).

e. Locker venting through rear panel 32m system.

6. Doors, End Panels, Sloped Tops:

a. Plastic laminate. high pressure. class II-B fire retardant, VGS-GP28, '14'' STD PB, UL and HPMA.

b. Square corners for 2000 Series edges finished.

c. 3/4-inch thickness 48 lb. industrial grade particle board with choice of vertical grade fire retardant (class II-B) plastic laminate for exterior finish and interior Wilsonart 1573 vertical grade frosty white cabinet liner.

7. Hardware:

a. Hinges, Heavy Duty: 2000 Series -- fully concealed, nickel plated, self-closing, 120 degree opening (3 per door > 42”) (CH).

b. Locks, Heavy Duty, specify: Built-in, flush, cam locks (cylinder locks) with five-pin tumbler keyway, keyed separately and master keyed. Furnish two change keys for each lock and two master keys.

1) Key Type: Flat, with minimum 2-inch by 2.68-inch key head for accessible lockers.

2) Bolt Operation: Manually locking deadbolt.

c. Cloths Hooks, Aluminum or Brass Finished:

1) Side mounted double or single prong.

2) Ceiling mounted double prong.

d. Coat Rods, nickel plated.

e. Number Discs: 1-1/4-inch diameter, 1/4-inch numerals recessed flush in door, satin chrome, satin brass and black.

8. Color(s): To be determined.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 11 2433

ROOF ANCHORS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Roof Anchor Layout.

B. Roof Anchors.

C. Note: Fall protection systems for construction workers building this project are the sole responsibility of the Contractor and are not included in this section.

1.02 SCOPE OF WORK

A. Provide a roof anchor layout that meets the requirements of OSHA.

B. Fabricate and install roof anchors that will allow maintenance workers to walk and work safely over the entire area of the roof and provide secure anchorage to arrest a fall by the user, in conformance with applicable Federal, State and local worker safety regulations.

1. System Type: Fall Arrest Fixed Anchors.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Welding Society (AWS).

C. Occupational Safety & Health Act (29 CFR) (OSHA):

1. OSHA Standard 1910 – Occupational Safety and Health Standards.

2. OSHA Standard 1926 – Safety and Health Regulations for Construction.

1.04 QUALIFICATIONS

A. Manufacturer: Company specializing in the design, fabrication, and installation of roof anchors for fall protection systems and maintenance equipment with at least 5 years of successful documented experience.

B. Loading and Safety Assurance: Work of this section to meet the requirements of governing codes and jurisdiction and to comply with properly engineered loading and safety criteria for the intended use.

C. Field welding shall be executed by AWS certified welders in accordance with AWS requirements.

PART 2 - PRODUCTS

2.01 ROOF ANCHORS – FIXED

A. Manufacturers / Products:

1. Guardian Fall Protection (Specified).

2. Pro Bel.

3. Super Anchor Safety.

B. Roof-Mounted Anchors (Single Ply Roofing Applications):

1. 12-inches High: Guardian Fall Protection; *CB-12 Anchor Point.*

2. 18-inches High: Guardian Fall Protection; *CB-18 Anchor Point.*

3. Anchor Height: As required for minimum 8-inch exposed height above surface of roof.

C. Wall-Mounted Anchors: Guardian Fall Protection; *CB-1-B - Bolt-On Wall Anchor*.

D. Roof-Mounted Anchors (Asphalt Shingle Roof Applications):

1. Guardian Fall Protection; *Ridge-It Anchor*.

a. Ridge Locations: Anchors #00510.

b. Field Locations: Anchors #00500.

E. Anchor Load Rating: 5,000 lbs. minimum.

F. Material: Hot dipped galvanized steel.

G. Connection to Building Structure: Attach to roof structure to meet the requirements herein. Design the connection of the fall protection anchors to the building structure to resist the design loads required by OSHA without overstressing any part of the system components or the structure beyond allowable values.

1. Fasteners: Provide hot-dipped galvanized machine bolts, washers and nuts of size and type recommended by anchor manufacturer to achieve the rated load capacity of the anchor.

H. Quantity: As required to meet OSHA requirements.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 11 4000

FOODSERVICE EQUIPMENT

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Furnish all labor, materials and services necessary for the procurement and installation of foodservice equipment in strict accordance with the Contract Documents and local codes including that which is reasonably inferred. No extra charge will be allowed for that which the Kitchen equipment contractor should be familiar.

B. Supervise and provide required instructions for work to be performed by other contractors in connect with requirements for all equipment under this section.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Floors, resilient sheet flooring, walls and finishes, ceilings and related building work: Divisions 03 through 09.

B. Wall backing to support all wall mounted equipment: Division 06.

C. All water, waste, indirect waste piping from sinks, services to the equipment including all shut-off valves, plumbing trim, traps, etc., and final connections to the equipment except as specified herein: Division 22 and 23.

D. All floor sinks and floor drains: Division 22.

E. Piping sleeves for refrigeration and drain lines through building floors: Division22.

F. All electric services and components including wiring to and final connections to all equipment except as specified herein: Division 26.

G. Furnishing and installation of conduit at cold storage rooms in cooperation with the Kitchen Equipment Contractor: Division 26.

H. Furnishing and installation of main power lines to refrigeration systems control panel and wiring for control / defrost heaters between panel and coils in accordance with factory supplied wiring diagrams and local codes: Division 26.

I. Installation of light fixtures furnished loose at cold storage rooms: Division 26.

J. Connection of cold storage room temperature alarm system to the building security system: Division 26.

K. Ground type receptacles for all wall mounted outlet to be used for plug-in equipment: Division 26.

1.03 OWNER / PURVEYOR FURNISHED EQUIPMENT

A. Obtain and coordinate manufacturer and model number not less than 60 days before equipment is required.

B. Obtain and coordinate utility requirements.

1.04 REGULATIONS

A. All work and materials shall be in accordance with the latest rules and / or regulations of agencies / authorities having jurisdiction.

B. All regulations, including building codes, and other codes applying to this jurisdiction should be followed. In addition, all equipment shall comply with the following:

1. Local Health Code.

2. National Fire Protection Association, Kitchen Ventilators (NFPA-96).

3. National Electric Manufacturer's Association (N.E.M.A.).

4. Underwriters Laboratories Inc., (U.L.), must bear label. National Electric Code, (N.E.C.).

5. National Sanitation Foundation, (N.S.F.), including NSF-7, must bear label in jurisdictions requiring the same.

6. American Society of Mechanical Engineers must carry the (A.S.M.E.) stamp.

7. American Gas Association, (A.G.A.).

8. Occupational Safety and Health Act (O.S.H.A.) Standards.

9. Hazard Analysis Critical Control Path (H.A.C.C.P.) Standards.

10. American Disability Act (A.D.A.) Standards.

11. Federal Energy Independence and Security Act of 2007 (HR6).

C. The Contract Documents shall govern wherever they require larger sizes or higher standards than are required by regulations.

D. The regulations shall govern whenever the Contract Documents require something which will violate the regulations.

E. When seismic regulations are applicable, all equipment shall be fabricated and installed in accordance with those regulations. All seismic requirements shall be shown on all submittals. Submit requested information to the agencies and authorities having jurisdiction.

F. No extra charge will be paid for furnishing items required by the regulations, but not specified and/or shown on the drawings.

G. Rulings and interpretations of the enforcing agencies shall be considered a part of the regulations.

1.05 WARRANTY

A. All equipment, fixtures and materials furnished and installed shall be guaranteed against defect in workmanship and material. All repairs and replacements which may have become apparent and necessary by reasons of such defects, during the first year after final completion and acceptance of equipment installation, shall be made without cost and expense to the Owner. All such repairs and replacements shall be made at a time and during hours satisfactory to the Owner.

B. For all commercially manufactured equipment that has refrigeration systems and semi-hermetic compressors, furnish an additional four (4) year warranty on all compressors.

C. Warranty period shall commence with the date of final acceptance of installation by Owner.

D. Components of equipment subject to replacement prior to one(1) year's use and those items which may fail due to improper or inadequate periodic maintenance by the Owner/Operator are not intended to be included within the scope of warranty.

E. Provide all labor, material, refrigerants, and incidental expenses to maintain the temperatures specified on all refrigeration systems. Systems to be kept in first class working condition for a period of one (1) year from date of acceptance by Owner, or the date systems are put into operation, whichever occurs first, without additional cost to the Owner.

1.06 PARTS AND SERVICE MANUALS

A. As a part of the Record Documents, furnish two (2) bound sets of parts and service manuals.

1. The manuals shall include a source directory for parts and service for all items.

2. The manuals shall be submitted in time to allow review and transmittal to the Owner / Operator prior to start-up and demonstration of the equipment. Manuals must be submitted before the Owner will issue final acceptance of the installation.

a. Provide a bound electronic pdf file copy on cd of the record drawings as part of this submittal.

1.07 VERIFICATION AND COORDINATION OF PROJECT / DATA

A. Range Lines:

1. All front manifold range lines shall be assembled and aligned at the factory before shipment, including back guards, high shelves and salamanders.

B. Pans and Inserts:

1. Verify sizes with Owner on the following items before ordering or fabrication:

a. Steam Pans.

b. Sheet Pans.

c. Trays.

d. Glass and Cup Racks.

C. Quietness of Operation:

Quietness of operation of all food service and refrigeration equipment is a requirement. Remove or repair any equipment producing abnormal and objectionable noises.

D. Delivery and Entry:

Verify all conditions at the building, particularly door openings and passageways for large equipment. Coordinate with the General Contractor access to insure delivery of equipment to the required areas. Coordination shall include, but not limited to, early delivery, hoisting, window removal and / or delay of wall construction. All special equipment, handling charges, window removal, etc. shall be paid for by the Kitchen Equipment Contractor.

E. Connection Terminals:

All equipment will be complete with standard connections as they relate to their Country of Origin. It shall be the responsibility of the Kitchen Equipment Contractor to provide any and all required adaptors to assure the proper connection to the conditions at the job site.

F. Site Verification:

Notify Designer, Owner and the General Contractor in writing if, in the Kitchen Equipment Contractor's opinion, the jobsite is not adequate to insure proper installation of the equipment. Notification shall be in writing with sufficient time to effect corrective measures to meet the installation schedule.

G. Cold Storage Rooms and Refrigeration Systems:

1. Coordinate the timely installation of the wearing floors inside the cold storage rooms with the General Contractor to prevent prolonged exposure of the floor insulation.

2. Prohibit cold storage rooms from being used by any other trade for storage or work areas. Repair or cause replacement to any damaged areas on the interior of the cold storage rooms, if the damage was caused due to the cold storage rooms being used for storage or work areas.

3. Advise acceptability of the remote refrigeration condensing unit's location in regard to ambient temperature, noise and accessibility. If the proposed location is unacceptable for any reason, advise Owner and request direction in writing.

PART 2 - PRODUCTS

2.01 COMMERCIALLY MANUFACTURED EQUIPMENT

A. All items of standard equipment shall be the latest model at time of delivery.

B. Follow manufacturer's directions used to fulfill this contract which cover points not necessarily shown on the drawings or specifications.

C. All doors shall be hinged as shown on plans.

2.02 PLUMBING WORK

A. Provide suitable pipe slots, chases and / or do all drilling, punching and cutting of equipment required to provide access for Division 22 connections and/or runs. Such work performed at the job site shall be of the same quality as similar work in the shop.

B. To insure proper clearance for cleaning, all horizontal piping lines shall be run at the highest possible elevation through equipment and not less than 6" (150 mm) above floor, wherever possible.

C. Indirect waste piping shall be installed in accordance with the local codes. Piping shall run as described hereinafter, and shall discharge into floor sinks. Extend piping to a point of at least 2" (50 mm) above rim of floor sink and cut bottom on 45º angle. All indirect waste piping shall be installed and routed in a manner to insure proper drainage and shall conform with shelves, spaces, equipment or building conditions. Indirect waste piping to be secured to fixture.

1. Indirect waste piping form ice bins, ice pans or similar items shall be insulated to prevent condensation.

D. Water inlets shall be located above the positive water level to prevent siphoning of liquids into the water system. Wherever conditions shall require a submerged inlet. Provide a suitable type of check valve and vacuum breaker.

E. Where exposed, piping and fittings shall be chrome plated.

F. All faucets intended to dispense water for human consumption shall be manufactured from pure stainless steel that contains zero lead, no brass allowed in the waterways of the product. Finish shall be polished stainless steel.

Type 1: Faucet: ½" inlets 8" adjustable wall mount base; 12" swing nozzle; elbows and supply lines.
T&S Model # B-0231-230KIT

Type 2: Faucet: ¾" inlets, 8" adjustable wall mount base, 14" swivel nozzle.
T&S Model # B-0278

Type 3: Faucet: ½" inlets, single mount dual control, deck mount base, 6" swing nozzle.
T&S Model # B-0202

Type 4: Faucet ¾" inlets, 8" adjustable deck mount base, 14" swing nozzle.
T&S Model # B-0293-14

Type 5: Faucet: ½" inlets, single hole dual control, deck mount base, 5-1/2" rigid gooseneck.
T&S Model # B-0300

Type 6: Faucet: ½" inlets, single hole single control, deck mount base, 6" swig nozzle.
T&S Model # B-0207-CR

Type 7: Pre-Rinse Unit: Easy install, ½" inlets, 8" adjustable wall mount base, 6" wall bracket, vacuum breaker, elbows and supply lines.
T&S Model # B-2278-EL

Type 8: Pot filler: ½" inlet, single mount single control, wall mount base, 18" double joint swivel nozzle.
T&S Model # B-0592

Type 9: Dipperwell Faucet: dipperwell faucet with drain, stainless steel bowl and inner overflow cup, ½" inlet.
T&S Model # B-2282-01

Type 10: Water Station with pedestal type glass filler, stainless steel drip pan, ¼" tailpiece for copper tubing, 1-1/4" drain.
T&S Model # B-1230-12

Type 11: Pre-Rinse Unit: Easy install, ½" inlets, 8" adjustable wall mount base with elbows, add-on faucet with 12" swing spout, 6" wall bracket, vacuum breaker.
T&S Model # B-2278-A12-EI

Type 12: Glass Rack Fill Faucet: pre-rinse unit; Easy install, single deck dual control, 6" wall bracket, vacuum breaker, B-0107-A spray valve, 18" flexible supply hoses.
T&S Model # B-0113-BVB-107A

2.03 DRAINS AND WASTES

A. Furnish all necessary drains and wastes with the equipment and as follows:

Type 1: Drain: 1-1/2" & 2" NPT waste valve with removable snap-in strainer. Rotary waste valve with twist handle 3-1/2" sink opening, 2" NPT male outlet & 1-1/2" NPT male adapter.
T&S Model # B-3950

Type 2: Basket Drain: 1.5 id. Basket strainer; polished chrome.
T&S Model # 5HS-7010

Type 3: Standpipe stainless steel overflow tube: 1-1/2" NPSM stainless steel drain; 1-1/2" NPSM brass locknut; 1-1/2" rubber washer
T&S Model # : 5CS-72I Overflow Tube
T&S Model # : 5HS-7001 Stainless Steel Drain
T&S Model # : 5GB-700 Brass Locknut
T&S Model # : 5FR-700 Rubber Washer

Type 4: Standpipe stainless steel overflow tube: 1" NPSM drain; 1" NPSM brass locknut.
T&S Model # : 5CH-52H Overflow Tube
T&S Model # : 5An-50F Drain
T&S Model # : 5GB-5000 Brass Locknut

Type 5: 1-1/2" NPSM stainless steel drain; 1-1/2" NPSM brass locknut; ½" rubber washer.
T&S Model # : 5HS-7001 Stainless Steel Drain
T&S Model # : 5GB-700 Brass Locknut
T&S Model # : 5FR-700 Rubber Washer

Type 6: Drain: rotary waste valve with twist handle, 3-1/2" sink opening, 2" NPT male outlet & 1-1/2" NPT male adapter & 19" x 15" overflow tube with head assembly. 1-1/2" NPT waste valve with removable snap-in strainer.
T&S Model # B-3950-01

Type 7: Drain: rotary waste valve with twist handle, 3-1/2" sink opening, 2" NPT male outlet & 1-1/2" NPT male adapter & 19-1/2" x 15" overflow tube with head assembly. 1-1/2" NPT waste valve with removable snap-in strainer.
T&S Model # B-3950-01-SB

B. Quick Disconnect Valves:

1. Gas Lines:

a. Flexible gas connectors shall be manufactured by Dormont Manufacturing Co., kits to include the following: Gas Connector, Type 304 stainless steel hose, stainless steel braid with 360 degree rotational end fitting and a flexible polymer coating with an anti-microbial agent. Safety Quik quick disconnect valve with thermal shutoff and one-hand operation. SwivelMax (2) multi-plane swivel fitting. Coiled restraining cable and hardware to prevent strain on gas connector. Safety-Set wheel placement system provided with anchoring system including removable thumb screws. Moveable gas appliance connectors must be of sufficient length to attached properly to the device and include all necessary fittings and related appurtenances required for the proper operation of the assembly. Assembly to be CSA design certified to ANSI Z21.69 / CSA 6.16 standards and be NSF certified, limited lifetime warranty.

2. Water Lines:

a. Flexible water hoses with quick disconnect for ice machines, coffee and tea brewers and any mobile equipment requiring water connections. Swirl™ Water Supply Line shall be manufactured by Dormont Manufacturing Co. and be a coiled retractable polyurethane hose that is NSF certified with a maximum allowable temp of 160 degrees and maximum allowable pressure 100 PSIG. Lead Free Brass Quick Disconnect fitting to be provided with 2-way shut off to stop water at supply side and prevent back flow from equipment when disconnected. Flexible water line must be of sufficient length to attach properly to the device and include all necessary fittings and related appurtenances required for the proper operation of the assembly.

3. Combi Oven Water Connectors:

a. Flexible Combi-Oven water connectors shall be manufactured by Dormont Manufacturing Co. and should include the following: Combi-Oven Water Connector, Type 304 stainless steel hose, 304 stainless steel braid with Lead Free Brass flared end fittings, Lead Free Stainless Steel 2-way quick disconnect to be provided with 2-way shut off to stop water at supply side and prevent back flow from equipment when disconnected, Lead Free brass garden hose adapter, coated in gray anti-microbial PVC, limited lifetime warranty.

C. Water Filters:

1. All ice machines, combi-ovens, coffee and tea makers or urns, carbonated beverage dispensers and steam equipment shall have a water filter of proper type as manufactured by OptiPure, or as required by the equipment manufacturer.

2.04 VENTILATION WORK

A. Provide all labor, material and installation services; verify sizes and locations of duct connections; and provide all exposed duct work from hoods, ventilators, and dishwashers to building duct work, including trim, closure panels and watertight or grease tight connection.

2.05 ELECTRICAL WORK

A. For all fabricated equipment, furnish, install (and intertwine from load center) all outlets, switches, controls, conduit, service fittings and load centers as shown as specified for the specific fixture. Load centers shall be complete with individual “visi-trip” circuit breakers for each device built into or forming an integral part of the unit. Furnish to Division 26 a wiring schematic including circuit breaker diagram for load center.

B. Insure that all equipment furnished under this contract shall be so wired, wound or constructed as to conform with the characteristics of electrical and other services at the premises.

C. Appliances shall be new, of manufacturer’s current production and furnished complete with motors drive mechanism and other electrical equipment if and as applicable. Wiring and connection diagrams shall be furnished with electricity operated machines and for all fabricated equipment.

D. All conduit wiring shall be run concealed wherever possible. Conduit shall be continuous from outlet to outlet and from outlet to load center circuit or pull boxes and shall center and be secured in such a manner that each system shall be electrically continuous throughout. All conduits shall be thoroughly and substantially supported by accepted industry practices.

E. Supply on each motor driven appliance or electrical heating unit, a suitable control switch or starter of proper type wherever such equipment is not so built.

F. All plug-in equipment shall have plugs and cords furnished and installed. Coordinate work with Division 26 so that the receptacles provided will match the specific plugs installed as part of the plug-in equipment. any changes on cords and plugs required in the field due to lack of coordination between Division 26 and Kitchen Equipment Contractor shall be the latter’s responsibility.

G. All surface mounted receptacles indicated for fabricated equipment are to have Component Hardware Model R58-1010 or equal aluminum box complete with satin finish stainless steel cover and receptacle as indicated below:

1. 2-pole, 3-wire grounding 20 amp; 125 V. Hubbell # 5352 or equal (NEMA 5-20R).

2. 2-pole, 3-wire grounding 20 amp; 250 V. Hubbell # 5461 or equal (NEMA 6-20R).

3. 2-pole, 3-wire grounding 30 amp; 250 V. Hubbell # 9330 or equal (NEMA -30R).

H. All built-in receptacles indicated for fabricated equipment are to be 2" x 4" x 1-1/2" (50 mm x 100 mm x 38 mm) deep "Handy Box" tack welded to fixture and fitted with receptacle indicated above and satin finish stainless steel cover. Splash mounted receptacles to be horizontal with all other vertical.

1. 30 AMP, 250 V receptacles require a 2-1/8" (54 mm) deep "Handy Box". If splash width to 2-1/2" (62 mm).

I. All electrically heated, fabricated equipment shall be internally wired to a thermostatic control and an "on/off" red light indicator, both to be mounted in a terminal box with a removable access panel and located outside the heating area. Wiring to be nickel-plated copper, properly insulated.

J. All cold storage room electrical components shall be provided with conduit, splice boxes, switches, fittings, etc. concealed within the insulated panels at time insulation is foamed in place. Conduit shall extend up within wall panels, through ceiling panels ready for EYS fittings and final connection by Division 26.

K. Provide all incandescent / LED bulbs and fluorescent / LED tubes required for equipment under this section.

2.06 FABRICATED EQUIPMENT

A. Special Fabricated Equipment:

All specially fabricated equipment must be by one manufacturer acceptable to Designer and the Owner.

B. Workmanship:

All work must be done in an approved workmanlike manner to the complete satisfaction of Designer and Owner.

C. Stainless Steel:

All stainless steel shall be the U.S. Standard gauge, 18-8, Type 304, finish as noted in Paragraph 2.5N. The exception for using Type 430 stainless steel shall be as noted in the itemized specifications.

D. Galvanized Steel:

All galvanized steel shall be electro-galvanized.

E. Welding and Soldering:

1. All seams and joints shall be shop welded or soldered as the nature of the material may require. Welds to be ground smooth and polished to match original finish.

2. Framework of galvanized steel shall be welded construction. Where galvanizing has been burned off, the weld shall be touched up with high-grade aluminum paint.

F. Sound Deadening:

The underside of all metal to tables, counters, drainboards, sinks and dishtables shall have a hard-drying NSF approved mastic, such as manufactured by component hardware, 1/16” (2 mm) minimum thickness. Exposed mastic will not be acceptable.

G. Metal Top Construction:

1. All seams and joints shall be one-piece welded construction, reinforced on the underside with galvanized steel reinforcing welded in place so tops can support heavy weight without deflection. Cross braces to be not more than 30” (760 mm) on center.

2. Field joints in stainless steel tops; where required due to limitation of sheet sizes, equipment sizes or installation requirements shall be welded, ground smooth and polished to blend with adjacent surfaces.

3. If inverted hat sections are used in lieu of channels, close ends. All exposed sides, ends, etc. shall be stainless steel #4 finish.

H. Fasteners:

1. Exposed bolt heads will not be permitted on fixtures.

2. Butt joints made by riveting straps under seams and then filled with solder will not be accepted.

3. Rivets of any kind, including pop-rivets, will not be accepted.

4. Exposed screw heads, when necessary, shall be one of the same materials as the pieces joined and counter sunk flush.

I. Rolled Edges:

Rolls shall be as detailed with corners bullnosed, welded, ground and polished.

J. Corners:

Dishtables, drainboards, splashbacks and turned up edges shall have 1/2" (15 mm) or larger radium bends in all horizontal and vertical corners, coved at intersections unless specified otherwise.

K. Enclosed Cabinet Base:

Bases shall be made of 18-gauge stainless steel sheets reinforced by forming the metal. Sides and partitions shall terminate at front in a 2" (50 mm) wide fully enclosed mullion and welded at intersections. Shelves are to be removable where detailed. Exposed ends, partitions and shelves are stainless steel.

L. Legs and Cross Rails:

1. Equipment legs and cross rails shall be 1-5/8" (40 mm) 16-gauge stainless steel tubing unless otherwise noted. All welds at cross rails shall be continuous and ground smooth. Tack welds are not acceptable. Tops of legs to be fitted with Component Hardware A20-0406 or A20-0206 leg sockets or approved equal. Gussets are to be welded to underside of sinks and bracing.

2. Bottom of legs to be fitted with Component Hardware A10-0852 adjustable stainless steel foot or approved equal. Foot plug to be welded, ground and polished. When flanged feet are specified, use Component Hardware O10-0854 adjustable stainless steel foot or approved equal.

3. Enclosed cabinet bases mounted on 6" (150 mm) high legs are to be equipped with Component Hardware 8048 Series adjustable stainless steel counter legs or approved equal, with mounting plate as required.

M. Metal Gauge:

Unless otherwise noted in Itemized Specifications or Details, all gauges to be manufactured to the following minimum thickness:

Stainless Steel USS Gauge	Decimal Thickness	Millimeter Thickness
12	.1094	2.78
14	.0781	1.98
16	.0625	1.59
18	.0500	1.27
20	.0375	0.95

N. Materials:

All fabricated items to be provided in gauge, metal type and finished per the following table:

Description	Gauge	Metal	Finish No.
Dishtable, Table and Countertops	14	S.S.	4
Hat Sections/Channel:			
Unexposed	14	Galvanized	---
Exposed	14	S.S.	4
Counter Body:			
Framework	14	Galvanized	---
Aprons, Partitions, Backs and Ends:			
(Exposed)	18	S.S.	4
(Unexposed)	18	Galvanized	---
Shelves	16	S.S.	4
Refrigerators			
Interiors	20	S.S.	2B
Doors			
Outside faces	18	S.S.	4
Inside faces	20	S.S.	2B
Drawer Pans			
General	20	S.S.	2B
Refrigerated	20	S.S.	2B
Shelf			
Wall Mounted	16	S.S.	4
Fixture Mounted	16	S.S.	4
Table	16	S.S.	4
Refrigerator		S.S. Wire	4
Shelf Bracket (Exposed)	14	S.S.	4
Ducts			
Exposed	16	S.S.	4-Weld
Dishmachine	20	S.S.	4-Weld
Wall Flashing	20	S.S.	4
Equipment Legs & Cross Rails	16	1-5/8" diameter S.S. tubing	4

O. Closure:

Backs of all fixtures, splashback, shelves, etc., shall be closed.

P. Casters:

Casters shall be heavy-duty, non-marking ball-bearing NSF approved type with greaseproof neoprene or polyurethane tires. Wheels shall be 5" (130 mm) diameter. Minimum width treads of 1-3/16" (30 mm). minimum capacity per caster 250 lbs. (115 Kg).

Q. Sinks:

1. Fabricated sinks shall have corners same as for metal tops. One piece welded construction with bottom pitched to drains and double wall partitions. Multiple compartments shall have continuous exteriors. Openings between compartments or applied panel will not be accepted.

2. Sink insets shall be 16-gauge stainless steel welded as integral part of top.

R. Drawers:

All drawer pans shall be 18-gauge stainless steel having all corners coved except where specifically noted otherwise. Pan to be mounted on fabricated 14-gauge stainless steel angel cradle frame. Frame to be supported on Component Hardware S52 or approved equal full extension slides with 200 lbs. (91 kg) capacity per pair. Pan to be easily removable without the use of tools. Drawer fronts shall be double pan type with sound deadening material. Drawer shall be self-closing.

S. Doors:

1. All metal doors to be double pan type reinforced and stiffened to prevent flexing and filled with sound deadening material.

2. Sliding doors shall be mounted on large ball-bearing quiet rollers in 14-gauge stainless steel overhead tracks and be removable without the use of tools. Sliding doors shall be self-closing.

3. Hinged doors shall be flush type, mounted on heavy duty, stainless steel, lift-off hinges, or as specified.

4. When specified, pulls shall be Component Hardware P62-1010 or approved equal.

T. Hardware:

1. All hardware shall be of heavy-duty construction and identified on shop drawings by manufacturer and model number and shall be subject to final approval by Designer.

2. All hardware shall be identified with manufacturer’s name and model number so that broken or worn parts may be replaced.

U. Breaker Strips:

All ice pans, ice bins, refrigerated pans and cabinets shall be provided with breaker strips where adjoining top or cabinet face materials to prevent condensation. Breaker strips shall be fastened with stainless steel, counter sunk screws. Pop rivets will not be acceptable.

V. Insulation:

All refrigerator insulation shall be foamed in place polyurethane. Fiberglass insulation shall not be used. Heated areas shall have minimum of 1" (25 mm) of thick fiberglass / mineral wool 2-1/2" (62 mm) density blanket insulation. Cold areas shall be 1" (25 mm) thick as indicated on details or drawings. Insulation shall be bonded to all surfaces.

W. Refrigerated Items:

1. All custom fabricated units to meet NSF-7 criteria.

2. All reach-in refrigerators and freezers with remote refrigeration systems shall be complete with thermostatic expansion valves at the evaporator.

3. Fabricated compartments, refrigerated shelves, plates, etc., shall be provided with a 20-gauge steel box to house expansion valves when valve is remote from evaporator. Install in base of fixtures or in a concealed position.

4. All refrigerated compartments shall be fitted with dial or digital type thermometers with chrome-plated bezels. Thermometers shall be adjustable and shall be calibrated after insulation.

5. Refrigerator hardware for fabricated refrigerator compartments shall be heavy-duty components. Hinges shall be self-closing. Latches to be magnetic edge mount type with cylinder lock unless specified or noted.

6. Refrigerated drawers shall be sized to accommodate two (2) 12" x 20" x 5" (Gastronorm 1/1) steam table pans side by side or as specified or shown on the drawings. Drawer pulls shall be Component Hardware Group, Inc. Model No. P60-1010 or as shown on the drawings. Drawer slides shall be Component Hardware Group S52 Series, 200 pound (91 Kg) capacity, with stainless steel bearings of length as required to suit drawer depth. Drawer front shall be double pan with 18-gauge stainless steel front insulated core and 20-gauge stainless steel back panel. Drawer frame shall be 14-gauge stainless steel.

7. Refrigerator door openings shall be sized to suit 18" x 26" bun pan or as specified or shown on the drawings.

8. Refrigerated bodies shall have extruded snap-on matte gray breaker strip at door and ingredient pan openings. Provide Component Hardware Group PTC T12-5000 Condensate Evaporator complete with wall mounting hardware.

9. Shelves shall be stainless steel wire installed on stainless steel removable keyhole type pilasters.

2.07 STANDARD DETAILS

A. Standard Details included as part of specifications are to be considered guides to quality and scope of work involved. Where shop practices dictate, alternate construction methods and component items of equal manufacturer may be substituted. It will be the responsibility of the Kitchen Equipment Contractor to prove the quality of the proposed methods.

2.08 COLD STORAGE ROOMS

A. Cold storage rooms shall be manufactured and installed in compliance with the Federal Energy Independence and Security Act of 2007 (HR6) and shall include:

1. Automatic Door Closing Device.

2. Strip Curtains or Air Curtains on Hinged Doors.

3. R-25 Insulation in Cooler Walls, Doors, and Ceilings.

4. R-32 Insulation in Freezer Walls, Doors, and Ceilings.

5. R-28 Insulation in Freezer Floors.

6. High Efficiency Lighting and / or Automatic (Occupancy) Light Switches.

7. Double Pane View Windows in Coolers if specified.

8. Triple Pane View Windows in Freezers if specified.

B. All prefabricated cold storage rooms shall be manufactured by one manufacturer and installed by factory supervised installer.

C. Interior finished ceiling height shall be 8’-0” (2440 mm) unless otherwise specified.

D. Materials:

1. Insulation shall be non-burning urethane, foamed in place, not frothed or rigid board form.

   a. Insulation shall be fluorocarbon filled (F-11) 95% closed cell content, nominal density of 2.0 pounds ± 0.1 per cubic foot. Dimensional stability shall be from 45^{o} F. (+7^{o} C.) to 200^{o} F.(93^{o} C.).

   b. Insulation shall have a thermal conductivity (K-factor) not to exceed (0.14 B.R.U./hour/square foot) as tested on ASTM C-177, at 75^{o} F. (24^{o} C.) mean temperature and an overall coefficient of heat transfer (U) not to exceed 0.029.

c. Classification: Each compartment shall bear a label “Class 1-Insulated Panel” as certified by an independent testing laboratory to have a surface burn spread 25 or less as determined by ASTM E84, UBC No. 9-1, Class A National Fire Protection Association N.F.P.A. Number 101, “Life Safety Code”.

2. Aluminum sheets used as a facia for wall and ceiling panels shall be stucco aluminum not less than .0404” thick.

3. Stainless steel sheets used as a facia for wall and ceiling panels shall be 20-gauge. Other stainless steel shall be the gauge specified. All stainless steel shall be 18-8, Type 304, #4 Finish unless otherwise specified.

4. Galvanized steel sheets used as a facia for wall and ceiling panels shall be prime finish, not less than 20-gauge complying with ASTM 525 and with G90 coating.

5. Wall protection panels shall be Fiberglass Reinforced Polyester (FRP-X) Paneling 3/32” thick, embossed, white color or as specified with low smoke and less that 25 flame spread rating.

E. Panel Construction:

1. Panels shall consist of precision die formed metal pans with 1/2" (50 mm) to 3/4" (76 mm) flanged perimeter, foamed in place urethane insulation between interior and exterior pans, thoroughly checked for gauge and shall be interchangeable with panels of like size. Metal pans shall be treated on the inside with a preparation coating of bonding agent to ensure a stable adhesion with the chemical bonding capabilities of the insulation.

2. Wall and ceiling panels shall be 4” (100 mm) and 5” (127 mm) thick as required to comply with applicable codes and contain 100% foamed in place insulation and shall not have any internal wood or metal structural members. To ensure tight fitting joints, all panel edges shall have foamed in place urethane tongues and grooves and a flexible vinyl gasket foamed in place on the interior and exterior of all edges.

3. Panels shall be rigidly coupled by a cam action hooked locking device. Locking device shall be foamed in place, maximum 48” (1200 mm) on center. Locking device shall be accessible from the inside to facilitate installation in confined areas and shall be provided with pressfit caps to close wrench holes. Joints between panels shall be sealed at interior and exterior edges with a pvc gasket or an odorless nontoxic, synthetic polymerized sealant, to maintain continuity.

a. Wall panels shall have a minimum of three (3) locking devices between each panel, located in the center, lower corner and upper corner.

b. Ceiling panels shall have a minimum of two (2) locking devices between ceiling panel and at wall panels, located at each corner of the wall panel. Ceiling panel joints shall be offset from wall panel joints.

c. Pre-fabricated floor panels shall have a minimum of two (2) locking devices between each floor panel and at walls, located at each corner of the wall panel.

4. All interior vertical corners shall be coved with a 1/2" (12 mm) radius.

5. Exterior panels, interior partitions, corner panels, ceiling panels and “T” intersection panels shall be matching construction.

F. Wall / Ceiling Support System:

1. Ceiling panels shall have a maximum deflection of 1/240 of the span under uniform loading of twenty (20) pounds per square foot. When the ceiling panels require a support system, the Manufacturer shall submit details and structural calculations to an engineer for approval prior to fabrication. A copy of the approved submittal shall be forwarded to Owner and Designer.

2. An indoor ceiling panel support system, when required, shall be furnished and installed using a hanger wire network attached to hanger brackets, designed to engage with the female lock pins imbedded within the roof panel foam core, spaced 4’-0” (1200 mm) on center.

G. Floor Types and Conditions:

1. TYPE 1 – Insulated Depressed Building Floor with wearing surface (quarry tile or vinyl) as specified in architectural drawings to be as follows:

a. The floor shall be constructed at the jobsite in a depressed slab.

b. Apply asphalt emulsion to clean smooth depressed floor. Install Alumiseal Zero Perm vapor barrier, up sides of recess and lapped 6”. Install cold storage room wall panels down into the bottom of the depression. Provide two (2) 2” (50 mm) thick layers of rigid board form urethane with staggered joints in depression over vapor barrier, installed after walls are in place.

c. On top of floor insulation provide a protective covering of 15 pounds felt. Overlap joints 6” (150 mm). Flash up sides to height of wall base.

d. When indicated on contract documents, finished floor outside the cold storage rooms shall ramp up 1/2" (12 mm) to the floor inside. The finished floor between cold storage rooms shall be ramped as well when indicated.

e. Concrete substrate topping and wearing surface to be provided and install as specified in Divisions 03, 07 and 09.

2. TYPE II – Pre-fabricated floor to be as follows:

a. The floor shall be pre-fabricated metal clad, foamed in place urethane insulated panels. Floor panel construction and insulation to be fully gasketed and to match that of wall and ceiling panels. Floor panels shall have a full integral cove with a minimum of 1/2" (12 mm) radius.

b. Wearing floor to be 1/8” (3 mm) thick diamond pattern aluminum tread plate over 3/4" marine grade plywood. When vinyl wearing surface is specified, provide 1/8” (3 mm) thick smooth aluminum plate in lieu of diamond plate. Tread plates shall be maximum size sheets available.

c. Exterior bottom face of floor shall be clad with 18-gauge galvanized steel.

d. Section lock parts, joints between floor panels and floor wall panels shall be filled with silicone sealant.

e. Interior / exterior ramps shall be furnished where specified and / or indicated on drawings.

H. Door and Door Frames:

1. Door sizes shall be as specified, hinged as indicated on plan.

2. Door shall be in-fitting, flush mounted, double pan 18-gauge stainless steel interior and exterior panels with foamed-in-place urethane insulation, 3” (76 mm) thick minimum, or as required by local code. Same construction as for wall panels. Corners of doors shall be Heliarc welded, ground and polished.

3. Door frames shall be 18-gauge stainless steel. When exterior protection is specified the exterior door frame shall have raised exterior casing to form a stop.

4. Furnish and install a removable threshold at each low temperature door, construction of 1/8” (3 mm) thick stainless steel with 2B finish.

5. Provide a heating element on the ambient side of each door frame head, jambs and threshold. The heating element shall be a dual 120-volt, 240-watt with thermostatic control, factory pre-wired to a “GS” splice box located above the door on the interior. Manufacturer shall provide a 1-1/4” (30 mm) diameter hole in the ceiling panel with a loose escutcheon through which Division 26 shall make final connection.

6. Gasket shall be extruded polyvinyl chloride with vulcanized corners and continuous magnetic core at sides and top of door frame. The stainless steel jamb facing shall extend to protect the gasket.

7. When a cold storage room has a door to both the storage / receiving area and the issue area, the lock on the storage / receiving door shall be blank on the inside, without inside release. The lock on the issue side shall be as specified in Paragraph 10.

8. Door shall be adjusted to be self-closing after installation and floor is finished.

9. Sill wipers for Type 1 floors shall be adjustable, extruded neoprene secured by removable stainless steel retainer strip and fasteners.

10. Each hinged door shall have:

    a. Kick plate of 14-gauge stainless steel 2'-0" (600 mm) high and full width of door. Mount on interior and exterior face of each door.

    b. Hinges, three (3) each per door, shall be cam lift, zinc die cast and polished chrome plated. Doors 42" (1065 mm) wide and wider shall have four (4) hinges. Hinges shall be Kason #1346.

    c. Latch shall be heavy-duty chrome plated brass with adjustable keeper, interior safety release and provisions for padlocking. Padlock by others.

    d. Hardware shall be mounted with 12-gauge reinforced steel tapping plates and machine screws.

    e. Heated viewport approximately 10" (254 mm) wide by 15" (381 mm) high, minimum triple thermopane glass. Viewport wiring to be concealed within door section.

11. Door section shall be self-supporting constructed similar to wall panels with 4" (100 mm) foamed in place urethane core and 12-gauge steel reinforcing. No wood frame will be permitted. Jambs and headers shall be 18-gauge stainless steel with steel backing in full perimeter.

I. Light Fixtures and Switches:

1. Quantity of 48" LED light fixtures shall be as indicated on the electrical plan. Provide Kason model 1810LX4000 4' LED with SMD Diodes.

2. Light fixtures shall be ceiling mounted; cast aluminum; fully enclosed; gasketed; vapor tight; weather tight; with shatterproof, heat resistant diffuser; and junction box.

3. Light fixtures shall be three-way or four-way, AC, pre-switch, mounted in recessed “FS” boxes with gray Hypolan, weatherproof plate, press switch cover and unbreakable red plastic pilot light lens constant burning on interior and indicating on exterior.

4. Cold storage rooms with doors at each end shall have three-way switches on the exterior and four-way on the interior.

5. Light fixtures shall be factory mounted on the latch side of doors and pre-wired with rigid conduit and wiring run within the wall panel, terminated in a vapor tight splice box mounted on the interior wall near ceiling. Manufacturer shall provide a 1-1/4” (31 mm) diameter hole in ceiling panel with a loose escutcheon through which Division 26 shall make final connections.

6. Alternate Light Fixtures: When ceiling mounted light fixtures cannot be used, the following light fixture shall be used.

   a. Light fixture shall be Kason 1808NM0000 vapor-proof with cast aluminum junction box and fixture body, gasket, plastic coated globe and lamp.

   b. Light fixture is mounted in the door section wall panel. Fixture shall be factory mounted and pre-wired to light switch with galvanized steel nipple terminated at exterior face of the ceiling panel.

J. Digital Thermometer and Alarm:

1. Digital thermometer and alarm shall be furnished for each cold storage room.

2. Digital thermometer and alarm shall consist of solid state audio alarm, silence button, trouble light, digital read out contacts to tie into building monitoring system and stainless steel cover.

3. Digital thermometer and alarm shall be flush mounted with stainless steel cover plate, mounted on the latch side of the door on the exterior of each cold storage room, pre-wired with rigid conduit and wiring run within the wall paneling using “FS” recessed box on the exterior and terminated in a “GS” splice box mounted on the interior near the ceiling. Manufacturer shall provide a 1-1/4” (31 mm) diameter hole in ceiling panel with loose escutcheon through which Division 26 shall make final connection.

4. When the door does not open into an ambient area, the digital thermometer and alarm shall be factory installed, as specified above, in a remote wall panel with an ambient face that will not interfere with other equipment and functions and identified with a name plate of the room being monitored. The sensor capillary shall be extruded as required and, when necessary, run in electrical conduit. Provide escutcheon plates on each side of each partition penetrated.

K. Door Fan Switch:

1. Door fan switch shall be provided for each low-temperature cold storage room, when it opens into a non-refrigerated area, to shut-off evaporator coil from fan motors when the door is opened.

2. Door fan switch shall be factory mounted on the door jamb and pre-wired with rigid conduit and wiring within the wall panel to a splice box located on the interior near the ceiling. Manufacturer shall provide a 1-1/4" (31 mm) hole in ceiling panel with a loose escutcheon through which Division 26 shall make interconnection to the evaporator coil(s) fan motors.

L. Interior / Exterior Wainscot:

1. When specified, wainscot shall be FRP-X panels, 4'-0" (1260 mm) wide by 3'-0" (915 mm) high. Exposed face of panels shall be clad with galvanized steel. Panels shall be applied in the field using a full bed of contact adhesive prior to the installation of the quarry tile top set base.

   a. Wainscot panels shall be stopped short 1" (25 mm) from inside corners. The top edge and all exposed vertical edges shall have matching "J" end cap molding. Joints between panels shall have matching "h" divider molding. Molding shall be installed with silicone sealant per the manufacturer's direction to assure a moisture proof installation. Vertical molding shall NOT be run behind quarry tile top set base. Height of tile base to be verified with General Contractor.

   b. Corner guards shall be furnished on all outside corners. Corner guards shall set on top of the quarry tile base.

   c. Trim for inside corners shall be 2" (50 mm) by 2" (50 mm) coved white stucco aluminum by height of wainscot from the top of the quarry tile base.

   d. Manufacturer and color shall be the same as the FRP-X furnished under Division 09 for the building walls in the foodservice areas.

M. Full Height Interior / Exterior Protection:

When specified, full height protection shall be FRP-X panels, 4'-0" (1200 mm) wide by 8'-0" (2440 mm) high. Exposed face of panels shall be clad with galvanized steel. Panels shall be applied in the field using a full bed of contact adhesive prior to the installation of the quarry tile top set of base.

1. Top edge when not covered and exposed vertical edges shall have matching “J” end cap molding. Joints between panels shall have matching “H” divider molding. Molding shall be installed with silicone sealant per the manufacturer’s directions to assure a moisture proof installation. Vertical molding shall not be run behind the quarry tile top set base. Height of the base to be verified with the General Contractor.

2. Trim for inside corners shall be 2” (50 mm) by 2” (50 mm) coved white stucco aluminum full height from the top of the quarry tile base.

3. At exterior when support of the end of the FRP-X panel is required due to the width of the space, a full height galvanized steel angle shall be fastened to the wall to support the free end of the panel. FRP-X shall be glued to angle.

4. Trim for inside corners shall be 2” (50 mm) x 2” (50 mm) coved white stucco aluminum by height of wainscot from the top of the quarry tile base.

5. Manufacturer and color shall be the same as the FRP-X furnished under Division 09 for the building walls in the foodservice area.

N. Closure Panels:

1. Closure panels shall be furnished and installed to close the space between the exterior top of the cold storage room and the finished ceiling of the building.

2. Panels to match exterior panel finish. Panels to be lift-out type with side turned into form a pan. At ceilings, securely fasten and angle for panel to slip into. Channel and angle to match panel material.

3. When exterior finish is FRP-X, the closure panel shall be white stucco aluminum.

4. When area does not have a finished ceiling, closure panels will not be required, unless otherwise specified or required by the Health Department.

O. Trim:

1. Vertical trim strips and angles to match cold storage room exterior finish. Trim to be applied with adhesive tape and a minimum of exposed fasteners to fully seal cold storage room adjacent walls, etc.

2. The FRP-X paneling with a “J” end cap molding is to be extended past the end of the cold storage room wall to the building wall and caulked with silicone as required.

P. Ramps and Sills:

Ramps and sills when required shall be pre-fabricated 16-gauge stainless steel ramps with 14-gauge galvanized reinforcing and urethane foamed in place insulation. Wearing surface to have 4” (100 mm) wide non-skid strips. See specifications and drawings for size and shape. All door sections shall be provided with minimum 14-gauge stainless steel sill plate complete with heater cable as stated under door section. Sill to be either built into ramp / pre-fabricated floors or to be part of door section on insulated depressed building floors. Sills to be removable for replacement of heat cable.

Q. Utility Penetrations:

1. Provide openings in ceiling and wall panels to accommodate all electrical, refrigeration and drain lines.

2. Seal all openings with silicone after lines have been run and before installation of escutcheons.

R. Escutcheons:

1. Provide sufficient quantity of 5” (127 mm) diameter blank stainless steel escutcheons to trim all interior and exposed exterior penetrations.

2. Provide cutting of proper size hole in blanks and panel penetrations.

S. Pressure Relief Vent:

1. Pressure relief vent shall be factory installed at each low-temperature cold storage room door.

2. Pressure relief vent shall be electrically heated, 120 volt and have aluminum screen.

T. Corner Guards:

1. Corner guards on the exterior outside corners shall be 4” (100 mm) x 4” (100 mm) x 48” (1200 mm) 16-gauge stainless steel secured to wall panels with a full bed or contact adhesive. When FRP-X is specified, corner molding shall be omitted behind the corner guard.

2. Corner guards on the interior outside corners shall be 2” (50 mm) x 2” (50 mm) by height of wainscot or 48” (1200 mm) high 18-gauge stainless steel secured to wall panels with a full bed of contact adhesive. When FRP-X is specified, outside corner moldings shall be omitted behind corner guards.

U. Divider with Gate:

Divider and gate when specified should be aluminum expand-x where indicated on drawings.

1. Panel mesh shall be flattened aluminum expand-x heliarc welded to aluminum frame.

2. Frame shall be 1-1/2” (38 mm) x 1-1/2” (38 mm) x 1/8” (3 mm) aluminum 6061-T6 angle. Frame shall have 3” (76 mm) space at bottom and 6” (152 mm) space at top.

3. Horizontal stiffeners shall be 1-1/2” (38 mm) x 1-1/2” (38 mm) x 1-1/8” (28 mm) aluminum angle.

4. Floor plates shall be 3” (76 mm) x 3” (76 mm) x 14” (356 mm) aluminum heliarc welded to angle posts.

5. Gate shall be of same construction as divider, 2’-10” (864 mm) wide with lock similar to that specified for insulated doors.

V. Rub Rails:

Rub rails when specified shall be located where indicated on plans.

1. Rub rails shall be continuous lengths of 18-gauge stainless steel “V” shaped hat section secured to wall with two (2) faced tape and stainless steel sheet metal screws 19” (457 mm) O.C. Exposed ends shall be bevel cut, capped, welded, ground and polished.

W. Strip Curtain

Strip curtain shall be provided on all doors and shall be Kason E2 mount with 50% door strip overlap or equal.

X. Door Locking Bars:

1. Door locking bars, when specified, shall be 1/8” (3 mm) by 2” (50 mm) stainless steel two-piece, hinged and secured at each end with interior safety release. Bar shall swivel and where the ends meet in the center shall have a 2” (50 mm) long 90^{o} “L” drilled to receive padlock, padlock by others.

2. When a door locking bar is specified, the latch specified in Paragraph H.10.c shall be replaced with a Kason Model 577 polished chrome plated door pull.

Y. Identification Signs:

1. At exterior of each Cold Storage Room (s) provide and permanently affix engraved plastic name plates with maximum 3/4" (18 mm) high letters and number identifying each Cold Storage Room and Refrigeration Systems to match "as built" diagram. Name plate to be mounted with adhesive below respective digital thermometer alarm. A similar name plate with 1/2" (12 mm) high letters is to be installed in a like manner on the evaporator coil(s) at all other items having a remote refrigeration system.

2.09 REMOTE REFRIGERATION SYSTEMS

A. All refrigeration systems shall be manufactured and installed in accordance with the Federal Energy Independence and Security Act of 2007 (HR6) and shall include:

1. High efficiency motors on condensing units and evaporator fans.

2. Efficient defrost systems on walk-ins with glass doors.

B. All remote refrigeration systems shall be furnished and installed by one contractor, unless otherwise specified.

C. Compressor and Condensing Units:

1. Units shall be factory assembled complete with selected air or water-cooled condensers best suited to match BTU load, high-load pressure controls, suction accumulator on low temperature system, sight glass, liquid line dryer, suction and discharge service valves, liquid receiver, and electrical control panel. The electrical control panel shall be furnished with magnetic motor starter, defrost timer clock, and contactors in accordance with "Refrigeration Schedule". Compressor capacities shall be based on Air Conditioning and Refrigeration Institute (A.R.I.) Standards.

2. Capacities shall be based on the following:

a. Compartment temperature and evaporating temperature greater than 32o F. (0o C.) 18 to 20 hours operation.

b. Compartment temperature greater than 32o F. (0o C.) and evaporating temperature less than 32o F. (0o C.) 16 hours operation.

c. Compartment temperature and evaporating temperature less than 32^{o} F. (0^{o} C.) 18 hours operation.

3. Condensing units shall be mounted on a steel base to effect a quiet operation. All rotating parts to be carefully balanced for minimum vibration and lubricated with forced or splash oil system. Receiver shall be sized for a complete pump down of the system and shall be shell type with fusible plug.

4. Compressor units to be provided with suction and discharge back setting type service valves and standard machinery finish.

5. Motors shall be single speed, maximum 1750 R.P.M. compound wound ball bearings or sleeve. Double squirrel cage motors with high starting torque set and low starting current to be used in a 3-phase application.

6. All machines to be equipped with quick acting type high-low pressure control switches having adjustable range and differential and high pressure cutout. Cutout to be automatic reset type. For air-cooled units the condenser shall be a standard manufactured part of the equipment. Condensing temperatures shall be based upon (100^{o} F., 38^{o} C.) ambient air.

7. Other components and accessories, such as suction filter and crank case heater shall be furnished when specified in the itemized specifications.

D. Motor Starters – Contactors:

1. All single-phase motors shall be provided with mounted and internally wired contactors, except where pre-wired units are furnished without contactors. Single-phase compressors shall be provided with built-in thermal and electrical overload protection.

2. All three phase motors shall be provided with magnetic type starters with quick trip overload elements matched for motor amperage except where overload protection is built into the compressor motor and the manufacturer supplies a contactor instead of a starter. Overload heater element shall be size according to manufacturer's recommendations. Compressor motor starters shall be definite purpose starters with manual reset.

3. Starters shall be installed upon surfaces free from excessive vibrations.

4. Where starters are required for installation in a motor control center, make and model of control center shall be verified and starters provided to match.

E. Oil Separator:

1. Provide oil separators, except when compressor manufacturer requires otherwise, 34° F. (1° C.), and below and install as near as possible to the compressor. The return line shall be connected to the top of the crankcase above the oil level. Where compressor does not have connection for oil return line from separator, connect to a tee in the suction line adjacent to the compressor. Exposed oil return line to be provided with shut-off valve of the pack-less stem type.

F. Compressor Racks:

1. Racks shall be of the number of tiers and quantity to accommodate the number of condensing units specified for each rack assembly and allow for service clearance and ventilation.

2. Racks shall be fabricated with structural steel of size and quantity to properly support the equipment to be installed on the rack.

3. Racks shall be all welded construction with welds ground smooth.

4. After completion of fabrication the complete rack shall be cleaned, primed and painted with top quality oil base enamel.

5. Each rack shall be equipped with a pre-wired duplex outlet.

6. Racks shall be pre-wired to a circuit breaker panel and pre-plumbed to a header (when specified water cooled) requiring a single point electrical and plumbing connection.

7. Racks shall have UL or equivalent approval.

G. Coils and Cooling Units:

1. Units shall be direct expansion type of size and design to effect required temperature, humidity and to suit application intent. Units shall be furnished and installed in accordance with the “Refrigeration Schedule”.

2. Units shall be hung from the ceiling with 1/2” (12 mm) nylon rods with plated steel nuts and washers. Rods shall extend through ceiling to bracing adequate for the suspended weight. Bracing shall be furnished as required; penetrations shall be sealed and trimmed with escutcheon plates.

3. Units shall be installed tight to ceiling. All installations adjacent to walls shall be set out a minimum distance conforming to manufacturer’s directions, to ensure proper air circulation and performance.

4. Units with fan or blower and motor shall have thermal overload protection and be wired as indicated in the “Refrigeration Schedule”.

5. Defrost cycle shall be based on the following:

   a. Coils for 32o F. (0o C.) and lower shall have an electric defrost controlled by a time clock mounted on the compressor rack.

   b. Coils for 33o F. (0.6o C.) and 34o F. (1o C.) shall have an air defrost controlled by a time clock mounted on the compressor rack.

   c. Coils for temperature above 34o F. (1o C.) shall have an air defrost in the off cycle controlled by proper sizing of the coil and the compressor.

6. Location of coils shall be coordinated with shelving and floor sink locations. Where coils protrude into aisle ways clear to height to be minimum 6'-6".

7. All coils for fabricated refrigerators / freezers shall be installed for accessibility and replacement.

H. Penetration Sleeves and Plates:

1. Service line penetrations of insulation to accommodate electrical conduit, refrigerant and drain lines shall be limited to a minimum with service stubbed through insulation or locations pre-determined by respective divisions.

2. Where service lines penetrate insulated walls, the opening shall be packed with caulking, before trimming with escutcheon plate.

3. All exposed ends of sleeves, both inside and outside of compartments, are to be trimmed with 24-gauge stainless steel escutcheon plates, furnished as blanks in which respective work divisions shall cut required line holes and install.

I. Refrigerant Piping:

1. Copper tubing for refrigerant piping shall conform to ASTM standard specifications, serial designation B-88. All piping shall be Type "L" ACR hard copper or cleaned and sealed soft Type "L" tubing, dry seal or equal as indicated. Forged or wrought copper fitting with sweat or soldered joints shall be used.

2. Tubing shall be cut only with a tube cutter and sized with a sizing tool.

3. Piping shall be exposed to view as required by the standard safety code for mechanical refrigeration.

4. The liquid suction lines from condensing units to coil shall be sized and run as shown on the "Refrigeration Schedule" and Refrigeration Drawings.

5. Piping run within cold storage rooms shall be finished with aluminum paint.

6. For exposed areas, accessible furred ceiling spaces and walls or excavated trench type installations, hard copper tubing shall be used. Exposed tubing shall be run in a manner to preclude damage by activities in the area; or shall be protected by conduit, furnished and installed as a part of this contract. Conduit shall have water evacuated and both ends completely sealed.

7. For piping run in conduit through inaccessible areas, such as under slab on grade, soft copper tubing shall be used. In lieu of large piping in conduit, especially vertical runs, random lines may be used; carefully fabricated and assembled to ensure equal pressure drop.

8. Ends of liens shall be capped to prevent contamination and opened only at time of final connection.

9. Suction lines shall be sized for a maximum pressure drop from evaporator to compressor 2 lbs. (0.9 kg.) for high and medium temperature systems, and of 1 lb. (0/45 kg.) for low temperature systems and shall allow gas velocities of not less than 750 FPM (3.8 M/sec) in horizontal runs and 1500 FPM (97.6 M/sec) in vertical risers. Liquid lines shall be size for a maximum pressure drop of 3 lbs (1.36 kg.) from receiver to evaporator.

10. Tubing lines shall be graded or pitched to prevent trapping of oil. Suction lines shall pitch 1/2" (12 mm)/10'-0" (3048 mm) minimum.

J. Joints and Connections:

1. Fittings shall be long radius wrought copper only as manufactured by Mueller Brass Company.

2. Vertically run suction lines shall have oil "P" traps constructed of two (2) 45^{o} ells and (1) 90^{o} ell, or one (1) piece Mueller "P" trap, of the same size as the vertical lines.

3. 1/8" (3 mm) NPT by 1/4 fl. Half union for all suction and discharge service valves with 1/4 fl. cap.

4. Reduction in piping size shall be made with a manufactured reducer coupling.

5. Flare nuts shall be short forged or frost proof.

6. All surfaces to be joined must be prepared and cleaned. When soldering stop of solenoid valves, wrap valves with moist fabric to absorb excessive heat. Stop valves shall be partly open. When soldering expansion valves or pressure regulating valves, remove power assembly, if necessary, to prevent damage by excessive heat.

7. Copper joints shall be made with Handy & Harmon “Sil-Fos” brazing alloy, “Phoson 15”, “Silvaloy 15” or equal; melting point of 1185°-1350° F. (607°-618° C.) silver content not less than 15%.

8. Copper to brass joints shall be made with Handy & Harmon “Easy Flo 45” brazing alloy “Silvaloy 45”, “Mueller 122” or equal; melting point of 1125°-1145 (607°-618° C.) silver content not less than 45%.

K. Hangers and Supports:

1. For all piping not run in conduit, provide adjustable hangers, anchors or straps as required. Hanger spacing shall not exceed 8’-0” (2400 mm).

2. Insulated copper tubing shall be provided with approved type sleeves at hanger points.

3. All insulated copper piping shall be isolated from supports by means of felt wrapping or with “Trisolater” by Semco or approved equal.

4. Vertical piping shall be supported at intervals with spring type hangers or a substantial pipe at case of the pipe. All horizontal pipe runs connected to vertical risers must be adequately supported.

5. For suspended conduit, support shall be by means of hanger permitting screw adjustments. Sufficient hangers shall be used to provide support, allow expansion and limit vibration.

L. Piping Sleeves:

1. Provide sleeve through walls which allow for fully insulated lines. Extend sleeves entirely through wall and dress each end with a chromium plated wall plate neatly fitted against the wall, securely fastened and sealed in place. All sleeves through wall shall be of standard weight steel pipe.

2. Piping lines and sleeves at wall or floor penetrations shall be caulked and made vermin-proof at all locations.

M. Piping Insulation:

1. Suction lines run in conduit shall be insulated according to ambient and humidity conditions to prevent condensation and freezing.

2. Refrigeration suction lines outside of refrigerated compartments, not run in conduit, shall be insulated back to compressors with Armstrong Armaflex AP foamed plastic insulation or as determined by code. Thickness of material shall suit service, ambient and humidity conditions, to prevent condensation, minimum thickness 1/2” (15 mm).

3. Cold Storage Room freezer drain lines extended through adjacent cooler compartments shall be insulated with 1/2” (15 mm) minimum thickness of Armstrong Armaflex AP foamed plastic insulation to prevent condensation. Carefully seal end of insulation tight against cooler wall surface.

4. Piping for cooling water services or refrigerant piping exposed to freezing ambient temperatures shall be insulated with 1/2” (15 mm) thickness of Armstrong Armaflex AP foamed plastic insulation. Paint exterior installation with Armaflex paint.

5. Thickness of material shall suit service, ambient and humidity conditions to prevent condensation.

6. Joints shall be sealed with Armstrong 520 adhesive. Insulation shall be continuous through clamps. Provide additional insulation where suction lines must be run within 12” (300 mm) or less or water or underground waste lines.

N. Heat Interchangers:

All blower control, unit coolers, plate type evaporators and other evaporators where specified, are to be provided with heat interchangers as manufactured by Dunham-Bush, Inc., with a capacity to match the condensing unit.

O. Temperature Control:

1. Temperature control of cold storage rooms shall be by line voltage thermostats operating liquid line solenoids.

2. Temperature control for remote normal temperature refrigerator shall be by low-pressure switch setting.

3. Temperature in each cold storage room compartment shall be controlled by electric thermostat, Ranco No. 010-1408, located within compartment and sensing element positioned to avoid fan discharge air stream.

P. Valves and Accessories:

1. All valves and controls shall be standard weight and suitable for service purpose intended, and subject to approval by the Designer.

2. Each system shall include condensing unit with standard valving, refrigerant piping, refrigerant, evaporator(s), liquid and suction line isolation valves within 5’-0” (1500 mm) of evaporators, thermostatic expansion valve for evaporator, heat exchanger, filter-dryer, liquid line solenoids for Cold Storage Rooms and liquid indicator.

3. Vibration eliminators on compressor suction and discharge lines, size same as piping, as manufactured by Anaconda.

4. Refrigerant shut-off valves shall be as manufactured by Henry or Superior Valve Company. Valves shall be place and in liquid line for each condensing unit and in each liquid line to each evaporator.

5. Expansion valves shall be Sporlan, furnished and installed in the liquid line at the evaporator, unless provided with manufactured equipment. External equalizer expansion valves shall be provided for coils fitted with refrigerant distributor.

6. A Sporlan drier shall be provided at the compressor. Up to 3 HP shall be a Catch-All series; larger than 3 HP shall be angle replaceable cartridge series.

7. Each liquid line sight glass shall be Sporlan “See All” moisture and liquid indicator and shall be full line size.

8. Solenoid valves shall be Sporlan line voltage, manual lift system type, to operate at maximum of 2 lbs (0.9 kg) pressure drop across the valve. Valves shall be full line size, using silver solder connection as applicable. A liquid line solenoid, normally closed, shall be used with temperature controller for each Cold Storage Room compartment coil on a system.

9. Include a suction line filter with access valve adjacent to compressor. Filter shall be a Superior “F” Series or equal.

10. EPR, CRT, and / or CDA valves shall be Alco or Sporlan.

11. Suction accumulators shall be Refrigeration Research 3700 series or Virginia CA series.

12. Discharge line mufflers shall be Refrigeration Research M-10 and M-15 or AC and RS S-6300 series.

13. Time clocks shall be Paragon.

Q. Drain Lines:

Type “L” copper coil drain lines extended to exterior of refrigerated compartments over floor sinks (drain) with “S” traps at termination ends.

1. Provide clean out “T” and cap at each change of direction in the lines. Provide individual drain lines for each coil unless otherwise specified. Drain lines shall be run tight to refrigeration compartment walls with minimum pitch of 2” (50 mm) per foot.

2. Drain lines inside low temperature compartments shall be equipped with drain line heaters and insulated with Armaflex 1/2” (12 mm) insulation. Drain lines in low-temperature compartments shall be extended into adjacent, medium or high temperature compartments to reduce length of drain line heater required.

3. Drain lines on the exterior of refrigerated compartment shall be painted with chrometone paint.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 12 2000

WINDOW TREATMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Behavioral Health Manual Roller Shades.

B. Manual Roller Shades (Administration Area).

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Architectural Manufacturers Association (AAMA):

1. AAMA 607.1 – Voluntary Guide Specification and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum.

C. Aluminum Association (AA).

1.03 QUALITY ASSURANCE

A. Fabricator / Installer: Company specializing in fabricating and installing the products specified in this section with a minimum ten years of experience.

B. Mock-Up: Install one complete operating sample of each different window treatment product with accessories on site for review by Owner and Architect. Adjust sample installation to gain acceptance. Accepted work may form part of the final installation.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver window treatments wrapped and crated in a manner to prevent damage and protect from dirt or staining.

B. Store in a clean, dry area, laid flat and blocked off ground to prevent sagging, twisting, or warping.

1.05 WARRANTY

A. Roller Shades: Provide manufacturer's ten year warranty for roller shades.

PART 2 - PRODUCTS

2.01 BEHAVIORAL HEALTH MANUAL ROLLER SHADES

A. Manufacturer / Product: InPro *Clickeze WebbLok Roller Shade* is the basis of design and standard of quality, performance, function and appearance required for this project. The following manufacturers with shade systems that meet or exceed this standard and the requirements of this section may provide roller shades.

1. Hunter Douglas.

2. MechoSystems.

B. Manually Operated Cordless Shade System:

1. Mounting: Surface Mounted.

2. Configuration: Single solar shadecloth.

a. Fabric: 1% openness.

b. Color: To be determined.

C. Shade Band:

1. Shade Bands: Construction of shade band includes the fabric, the hem weight, hem-pocket, shade roller tube, and the attachment of the shade band to the roller tube. Sewn hems are not acceptable, unless requested by Architect.

a. Hem Pockets and Hem Weights: Fabric hem pocket with RF-welded seams and concealed hem weights. Hem weights shall be of appropriate size and weight for shade band. Hem weight shall be continuous inside the hem pocket. Hem pocket construction and hem weights shall be similar, for all shades within one room.

b. Shade Band and Shade Roller Attachment:

1) Use extruded aluminum shade roller tube of a diameter and wall thickness required to support shade fabric without excessive deflection. Roller tubes less than 1.55-inch in diameter for manual shades are not acceptable.

2) Provide continuous positive engagement of spring mechanism.

3) Provide for positive mechanical attachment of shade band to roller tube; shade band shall be made removable / replaceable with 0.625-inch x 0.3125-inch extruded ABS guide slats.

D. Shade Fabrication:

1. Fabricate units to completely fill openings from head to sill and jamb-to-jamb, unless specifically indicated otherwise.

2. Fabricate shadecloth to hang flat without buckling or distortion. Fabricate with trimmed edges to hang straight without curling or raveling.

3. Fabricate units for manual operation without the use of cords or chains using an internal lift spring completely contained within the shade roller tube.

4. For railroaded shadebands, provide seams in railroaded multi-width shadebands as required to meet size requirements and in accordance with seam alignment as acceptable to Architect. Seams shall be properly located.

E. Components:

1. Access and Material Requirements:

a. Provide shade hardware allowing for the removal of shade roller tube from brackets without removing hardware from opening.

b. Use only ABS with UV inhibitors, reinforced vinyl or Styrene based plastics for all plastic components of shade hardware.

2. Manually Operated, Cordless WebbLok Hardware and Shade Brackets

a. Shade Roller:

1) Tube: Provide extruded aluminum alloy 6061 or 6063, 1.75-inch diameter with exterior 0.15-inch x 0.84-inch slot for attaching shade fabric using 0.625-inch x 0.3125-inch extruded ABS guide slats to provide horizontal adjustment of shade fabric while preventing removal of fabric after installation.

2) Lift Mechanism: Inner lift spring shall be constructed of blue spring steel of sufficient thickness to provide positive mechanical engagement through entire operation of shade unit. Drive pins shall be heat-treated 1-inch x .024-inch steel.

b. Bottom Rail:

1) Bottom Rail: Provide bottom rail constructed of milled wood board with 0.5-inch OD aluminum end tubes and notched center tube to contain aluminum rod mechanisms and finger clip releases.

a) Finger Clip Release: Provide non-looping, injection molded ABS finger clips. Shall be attached to threaded rod mechanism inside notched center tube.

b) Rod Mechanism: Provide two each per shade unit, 0.25-inch aluminum rods, custom fit to each shade unit, with removable, adjustable end tips. Shall have one threaded end to attach adjustable end tips.

c) End Tips: Provide injection molded, reinforced nylon end tips press fit into 0.375-inch x 3.5-inch aluminum tube. Shall attach to threaded end of rod mechanism to allow for adjustment to exact window size. End tips shall provide lateral resiliency for proper alignment and engagement of track stops. Custom break away upon Architect request.

c. Bracket Plates:

1) Provide mounting bracket plates constructed of 18 gauge galvanized steel with embossed drive pin slots, and 0.25-inch x 0.562-inch nylon bushing inserts pressed into each idler pin aperture. Shall be corrosion resistant and will not buckle, bend or break under the shear forces created by the roller tension, shade material, or normal operation.

a) Security Box Bracket Plates: Shall be constructed with 0.75-inch folded lips for attaching security boxes. Shall receive a baked on coating to match security box color as specified by Architect.

d. Guide Tracks:

1) Provide extruded aluminum alloy 6063-T5, 0.5-inch deep x 0.75-inch wide, and shall be clear mill track finish or anodized bronze finish. Stops shall be punched from back of track at a downward angle to create level, preset stops in the upward direction and eliminate engagement with nylon guide tips moving in a downward direction. All tracks shall have identical stops for shades to remain level with bottom sill. Track shall be mounted with screw at top, center, and bottom with a 0.25-inch nylon spacer over top screw to contain guide tips within track.

e. Valance:

1) Security Box: Provide front security box and back plate constructed of corrosion resistant galvanized steel of sufficient thickness to prevent bending or buckling, with a baked on coating. Shall be custom fit to each window opening with folded lips to eliminate exposed edged. Security box and back shall create a sealed unit to prevent access and removal of shade roller. Security box shall be attached to bracket plates using tamper resistant fasteners.

2) Security Box Type: Standard Security Box – SSB.

2.02 MANUAL ROLLER SHADE

A. Manufacturer / Product: Mecho *Mecho / 5 SlimLine with Fascia* is the basis of design and standard of quality, performance and function required for this project. Other manufacturers with shade systems that meet or exceed this standard and the requirements of this section may submit a substitution request in accordance with the provisions of Section 01 6000.

B. Surface Mounted Manually Operated Roller Shade System:

1. Pre-engineered unit with one-piece molded sprockets and a linear disc brake opposed to a flat steel backing plate and concealed variable-adjustable mechanism.

2. The shade cloth shall be removable with a snap-on and snap-off mounting spline without having to remove the shade tube.

3. Accessories:

a. Provide aluminum fascia with top and end caps.

b. Drive chain: #10 stainless steel, tested strength of 80 lbs to eliminate breakage of chain under normal usage.

C. Shade Mounting Brackets:

1. All shade brackets shall be shipped completely assembled from the factory.

2. Mounting assembly shall allow for continuous front or back-roll fascia across multiple shades without exposed fasteners.

3. Shade roller tube shall be removable from mounting assembly without hardware removal.

4. All non-metal components shall be self-lubricating.

5. Shade hardware system shall provide for field adjustment or component replacement without removal of brackets, regardless of mounting location.

6. Shade hardware shall allow for a bottom-up or a sideways roller tube installation and removal without removing brackets.

D. Roller Tube Assembly:

1. Top roller tube of one piece extruded aluminium tube, with 10 micron thick clear anodised coating, at the manufacturers recommended engineered diameter and wall thickness for maximum allowable deflection of L / 700; Mill finish tubes will not be acceptable.

2. The roller tube shall be extruded with provision made for mechanical engagement with the operator and drive assembly.

3. Fabric panels must be replaceable on site. Attachment of the fabric to the tube with double sided adhesive tapes, adhesives, staples, or rivets is not acceptable.

E. Fasteners: Manufacturers recommended non-corrosive fasteners.

1. Provide silicone sealant at all fastener penetrations into adjacent material

F. Shade Cloth Fabrics:

1. Shade Fabric: 1% open.

2. Colors: To be determined.

3. Fabric shall be assembled continuous and in one piece without splicing fabrics together.

G. Fascia Color: To be determined.

H. Aluminum Finishes:

1. Anodized Finish: Anodized coating, Architectural Class II, etched, medium matte, clear anodic coating, 0.4 mil minimum thickness; conform to AA-M12C22A31 and AAMA 607.1.

2.03 FABRICATION

A. Make accurate measurements at the site before fabrication. Confirm mounting conditions and layout of window framing sections, spans, and loading capabilities.

B. Fabricate shading system components allowing for installation techniques to suit project requirements.

C. Finished assemblies shall be, square, true to size and free from distortion, twist, or other defects that could affect their strength, operation or appearance. Factory applied finish shall be uniform, smooth and without blemishes.

D. The fabric shall be colorfast, retain its shape, not be affected by moisture, chlorine, or heat, and shall be non-flammable. Cut fabric to eliminate glare and reflection from shining surfaces while maintaining exterior view. The top of the fabric is retained in recessed spline of the shade roller and the bottom of the fabric is retained by the selected hem.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 12 3200

MANUFACTURED CASEWORK

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Manufactured Plastic Laminate Casework.

B. Laminated Hardwood (Butcher Block) Countertops.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. Americans with Disabilities Act (ADA).

C. American Hardboard Association (AHA):

1. AHA A135.4 – Basic Hardboard.

D. American National Standards Institute (ANSI):

1. ANSI A208.1 – Wood Particleboard.

E. Architectural Woodwork Institute (AWI):

1. AWI – Architectural Woodwork Quality Standards.

F. International Code Council (ICC):

1. ICC / ANSI A117.1 – Accessible and Usable Buildings and Facilities.

G. National Electrical Manufacturers Association (NEMA):

1. NEMA LD 3 – High-Pressure Decorative Laminates.

H. Voluntary Product Standard (PS):

1. PS 20 – American Softwood Lumber Standard.

1.03 QUALITY ASSURANCE

A. Perform work in accordance with Architectural Woodwork Institute (AWI) Architectural Woodwork Standards (AWS), Premium Grade.

B. Work in this section shall comply with the specified Grade found in the Architectural Woodwork Institute (AWI) Architectural Woodwork Standards (AWS).

C. Casework Manufacturer / Fabricator: Company shall have at least 10 years of experience in fabricating commercial casework.

D. Installer Qualifications: Installers shall be employed directly by the casework manufacturer and paid hourly.

1. Installation subcontractors and installers paid by the piece are not acceptable.

2. Manufacturer shall employ only skilled, journeyman cabinet installers to install the work of this section.

3. Provide list of at least 10 recently completed projects with addresses within 150 miles of this project upon request.

E. Workmanship: Fabrication and installation workmanship shall be of the best quality; installed work shall fit properly, be free of any visual defects and conform to the requirements of this section.

1.04 DELIVERY, STORAGE AND PROTECTION

A. Protect units from moisture damage.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Building exterior openings shall be enclosed / completed and interior moisture producing wet work (GWB, plaster, tile, painting, etc.) shall be completed and dry.

B. Building temperature and humidity shall be stabilized at the same temperature and humidity conditions as will occur after occupancy for at least one week before starting installation of the work of this section and shall be maintained during and after installation.

C. Unpackage materials and spread out to allow materials to acclimate and achieve moisture equilibrium inside the building for a minimum of 72 hours prior to start of installation and as required to prevent open joints due to shrinkage; or swelling and buckling of products after installation.

1. Moisture equilibrium shall be in accordance with the Moisture Equilibrium Table included in Architectural Woodwork Standards (AWS) Section 2.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Adhesives: VOC levels of adhesives used during construction shall not exceed 50 g/l VOC limit.

2. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

3. Particle Board: Maximum formaldehyde emissions from particle board used during construction shall not exceed 0.09 PMM limit.

2.02 MANUFACTURERS – MANUFACTURED PLASTIC LAMINATE CASEWORK

A. Manufacturers: The standard of quality, performance and function required for factory casework is AWS Premium Grade, Reveal Overlay, as further modified by this section and the Drawings to meet the requirements of this project.

2.03 WOOD MATERIALS

A. Softwood Lumber (for use in concealed locations only): NIST PS 20; Graded in accordance with AWI P-200 Economy average moisture content of 11 percent.

2.04 PANEL MATERIALS

A. Softwood Plywood: NIST PS-1, APA stamped, exterior grade, five ply, sanded "A" face on exposed surfaces to receive finish material, "C" face on concealed surfaces.

B. Monolithic Flakeboard (Particleboard): Industrial Grade Particleboard conforming to ANSI A208.1 manufactured with a formaldehyde-free binder, three-ply, balanced construction of 45 lbs. per cubic foot density, moisture content of 8% or less.

C. Melamine-Faced Monolithic Flakeboard (Particleboard): Industrial Grade Particleboard conforming to ANSI A208.1 manufactured with a formaldehyde-free binder, three-ply, balanced construction of 45 lbs. per cubic foot density, moisture content of 8% or less.

1. Color: White.

D. Hardboard: AHA A135.4; Pressed wood fiber with formaldehyde-free binder, tempered grade, exposed face(s) smooth.

E. Moisture Resistant Medium Density Fiberboard (MDF): Industrial Grade Medium Density Fiberboard (MDF), manufactured with a formaldehyde-free binder and which meets the requirements of ANSI A208.2, product class MD-EXTERIOR.

2.05 PLASTIC LAMINATE MATERIALS

A. Manufacturers: Provide plastic laminate selected by Architect from the following manufacturers:

1. Formica.

2. LaminArt.

3. Nevmar.

4. Pionite.

5. Wilsonart.

B. High Pressure Plastic Laminate conforming to NEMA LD-3 and the following:

1. Horizontal Applications: HGS (0.048-inch thick).

2. Post Formed Applications: HGP (0.039-inch thick).

3. Vertical Applications: VGP (0.028-inch thick).

4. Cabinet Interior Applications (Open Cabinets exposed to View): CLS (0.020-inch thick).

5. Laminate Backing Sheet: BKL (0.020-inch thick) backing grade, undecorated plastic laminate.

6. Colors: To be determined.

2.06 LAMINATED HARDWOOD (BUTCHER BLOCK)

A. 2-1/4-inch thick hardwood slab fabricated by laminating strips of American Black Walnut hardwood, kiln dried at 8% moisture content and glued into a monolithic slab to required size and sanded flush and smooth. Manufacturer's standard varnique finish.

1. Manufacturer / Product: John Boos; *2-1/4" Thick American Black Walnut Island Tops*.

2.07 SOLID SURFACE COUNTERTOPS

A. Solid Surface Countertops: Material is specified in Section 12 3661.

2.08 HARDWARE AND ACCESSORIES

A. Adhesive – Shop Applied: Type recommended by laminate manufacturer to suit application.

B. PVC Edge Banding: Provide 3 mm thick PVC edge banding in color / pattern matching adjacent plastic laminate color / pattern, hot melt glue applied at factory.

1. Edge Band Custom Colors: Provide custom color / pattern to match specified plastic laminate colors.

C. Hinges: 2-3/4-inch heavy-duty five knuckle, pin type hinges fastened with minimum of four screws in each leaf, with at least 2 of the four screw fastened directly into face, satin chrome finish.

D. Door Catches: Magnetic catches with minimum 7 lb. pull.

E. Drawer Glides: 75 lb. concealed, epoxy coated, under mount, self-closing, self-adjusting.

F. File Drawer Glides: Full extension glide with 150 lb. load rating; Accuride #4032.

G. Pulls: 4-inch aluminum wire pulls, clear anodized finish.

H. Anti-Ligature Pulls: Kingsway Group USA; *Classic Grip Cabinet Pull KG62*.

I. Shelf Supports: Nickel plated steel L-shaped clips with steel pin which fits into 5 mm hole, with security pin for preventing inadvertent shelf removal.

J. Clothes Rods: 1-inch diameter polished chrome steel tube with support flanges at each end are used.

K. Coat Hooks: Wall mount double coat hook, cast aluminum finish.

L. Locks: National Lock, type appropriate for application, US26D satin chrome finish, keyed as directed.

M. Mailbox Nameplate: Metal side feed *Slotted Card Holder #8676T46* by McMaster-Carr to fit width of shelf, brushed aluminum.

N. Concealed Bracket Counter Support: Specified in Section 05 5000.

O. Exposed Countertop Support Brackets: Heavy-duty welded tube steel construction, sized to fit counter depth, powder coat finish; capable of 300 pound load without failure or deflection.

P. Fasteners: Size and type to suit application.

Q. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application.

R. Concealed Joint Fasteners: Threaded steel.

S. Grommets:

1. Manufacturer / Product: Mockett *BRV2 / SQ – Square Brava Grommet*

2. 80mm diameter, metal material for cut-outs.

3. Finish: Satin Chrome.

4. Verify location and quantity with Architect.

T. Tackable Wall Panel: 1/4-inch thick homogeneous tackable linoleum surface consisting of linseed oil, granulated cork, rosin binders and dry pigments on burlap backing.

1. Manufacturer / Product: Koroseal; T*ac-Wall*.

2. Color: To be determined.

U. Cable Tray: 2-inch deep by 6-inch wide, 0.120 inch diameter welded wire construction in 2-inch x 2-inch grid pattern, powder coated finish, black color, lengths as required to fit condition, provide all corners, fittings, accessories and supports required to accommodate installation conditions; *CM-10 Wire Cable Tray System* manufactured by CableOrganizer.com, or similar.

2.09 FABRICATION – PLASTIC LAMINATE CASEWORK

A. Verify field conditions and dimensions prior to starting fabrication.

B. Fabricate casework to conform to manufacturer's published standard and these specifications.

1. Accessibility Requirements: Conform to ADA, IBC and ICC / ANSI A117.1 accessibility regulations and as indicated on Drawings.

C. Fabricate in sizes and shapes indicated and as required to fit the spaces and conditions.

D. Provide thermo-fused melamine overlay on all exposed interior faces of particleboard that do not receive plastic laminate; color as selected.

1. Provide protective seal on concealed faces.

E. Open cubbies to receive plastic laminate finish.

F. Shop assemble casework for delivery to site in units easily handled and to permit passage through building openings.

G. Cap exposed plastic laminate finish edges with 3mm PVC edge banding.

H. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

I. Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners.

J. Apply wood laminate by grain matching adjacent sheets to book matching. Run all wood grain the same direction.

K. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces; match liner color where exposed inside of cabinet or on back of doors and drawer fronts.

L. Shelves over 29 inches shall be 1-inch thick.

M. Provide cutouts for fixtures and fittings. Verify locations of cutouts from on-site dimensions. Seal cut edges.

N. Cabinet bases shall receive resilient base or coved flooring provided by flooring subcontractor under Section 09 6500 and as indicated in the finish schedule.

1. Scribe base to fit floor profile / slopes so that gap between bottom of base and floor does not exceed 1/4-inch.

O. Light Valance: Construct valance on upper cabinets wherever lighting fixtures are shown on Drawings. Doors shall extend to bottom edge of valance to conceal it from view when doors are in the closed position.

2.10 FABRICATION – LAMINATED HARDWOOD (BUTCHER BLOCK) COUNTERTOPS

A. Fabricate to required size as shown on the Drawings.

B. Provide backsplash on wood counters, 4-inch minimum height or as shown on Drawings.

2.11 FABRICATION – SOLID SURFACE COUNTERTOPS

A. Solid Surface Countertops: Fabrication is specified in Section 12 3661.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 12 3661

SOLID SURFACE COUNTERTOPS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Solid Surface Countertops.

1.02 PERFORMANCE REQUIREMENTS

A. Structural Requirements: Design and fabricate countertop assembly and the supporting substructure to support 300-pound concentrated load applied at any point without overstressing any part of the assembly, failure of the assembly or deflection of countertop front edge.

B. Accessibility Requirements: Installation shall conform to accessibility requirements of ADA and ICC / ANSI A117.1

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. Americans with Disabilities Act (ADA).

C. International Code Council (ICC):

1. ICC / ANSI A117.1 – Accessible and Usable Buildings and Facilities.

1.04 QUALITY ASSURANCE

A. Fabricator / Installer Qualifications: Fabricator / installer shall have at least 5 years of experience in fabricating and installing solid surface fabrications and employs skilled workers who custom fabricate products similar to those required for this project and whose products have a record of successful in-service performance.

B. Flammability Tests: Solid surfacing products shall conform to Class A (Class I) surface burning characteristics as determined by testing identical products per UL 723 (ASTM E84) or another testing and inspecting agency acceptable to authorities having jurisdiction:

1. Flame Spread Index: 25 or less.

2. Smoke Developed Index: 450 or less.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver no components to project site until areas are ready for installation.

B. Store components indoors prior to installation.

C. Handle materials to prevent damage to finished surfaces.

1. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

1.06 WARRANTY

A. Manufacturer's Warranty: Provide manufacturer's standard 10 Year Commercial Limited Warranty against defects in solid surface sheet materials.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Adhesives: VOC levels of adhesives used during construction shall not exceed 50 g/l VOC limit.

2. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

3. Particle Board: Maximum formaldehyde emissions from particle board used during construction shall not exceed 0.09 PMM limit.

2.02 SOLID SURFACE COUNTERTOPS

A. Manufacturers / Products: The following products are the basis of design and the standard of quality, function, performance and appearance required for this project.

1. Dupont; *Corian* (specified – basis of design).

2. Krion; *Natural Lux*.

B. Solid Surface Material: Cast, nonporous, filled polymer, with through body colors, having minimum physical and performance properties noted in manufacturer's published product description.

C. Thickness: 1/2-inch.

D. Edge Thickness and Profile: Build up edge thickness to 1-1/2 inches with solid surface material; provide square edge profile with 1/8-inch radius.

E. Color / Finish: As specified in Section 01 8419.

F. Support Substructure: Provide substructure recommended by manufacturer conforming to Performance Requirements specified herein.

G. Accessories:

1. Joint Adhesive: Methacrylate-based adhesive approved by solid surface manufacturer for chemically bonding solid surfacing seams. Color complementary to solid surfacing sheet material.

2. Elastomeric Sealant: Sealant approved by solid surface manufacturer, mildew-resistant silicone sealant for filling gaps between countertops and terminating substrates in wet environment applications. Complies with ASTM C 920, Type S (single component), Grade NS (nonsag). Match color of solid surface.

3. Sink / Lavatory Mounting Hardware: Manufacturer's standard bowl clips, panel inserts and fasteners for attachment of undermount sinks / lavatories.

4. Construction Adhesive: Countertop manufacturer's recommended silicone-based construction adhesive for backsplashes, sidesplashes, and other applications according to manufacturer's published fabrication instructions.

2.03 SHOP FABRICATION

A. Fabricate components in shop to sizes and shapes indicated on Drawings, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.

B. Coordinate and confirm field dimensions and conditions affecting work prior to start of fabrication.

1. Countertops Supported on Wall-Mounted Support Brackets: Coordinate dimensions and countertop support requirements with Section 05 5000.

2. Casework Mounted Countertops: Coordinate dimensions and required supports for countertop with Section 12 3200.

3. Confirm and coordinate cutout sizes and locations for sinks, appliances, etc.

4. Form joint seams between solid surfacing components with specified joint adhesive. Completed joints shall be inconspicuous in appearance and without voids. Provide joint reinforcement if required by manufacturer for particular installation conditions.

5. Shop assemble work in largest sections possible that will fit through building openings.

C. Countertops, Backsplash and Sidesplash Fabrication:

1. Fabricate countertop assembly and the supporting substructure to conform to Performance Requirements specified herein.

2. Provide solid surface sheets in the largest sizes available and lay out for minimum number of joints.

3. Exposed Edges: Match finish on face of solid surface sheet.

   a. Radius exposed edges 1/8-inch.

4. Countertop Front Edge Treatment: Build up edge to 1-1/2-inch thickness with laminated solid surface material.

5. Supported by Wall-Mounted Brackets: Provide solid surface apron as shown on the Drawings adhered to underside of countertop and supported on back side by support substructure.

6. Provide cutouts for sinks, plumbing fittings and appliances using manufacturer's templates / dimensions.

7. Form joints between components using manufacturer's standard joint adhesive without conspicuous joints.

   a. Joints shall be 100% watertight.

8. Backsplash and Sidesplash: Adhere to countertops using manufacturer's joint adhesive.

   a. Counters with Sinks: Form a 1/8-inch radius cove between counter and backsplash / sidesplash for improved cleanability.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 12 5219

CUSTOM UPHOLSTERY

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Round Edge Cushions.

1.02 QUALITY ASSURANCE

A. Fabricator: Company specializing in fabricating the products specified in this section with a minimum five years of experience.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials wrapped and protected in a manner to prevent damage; protect from dirt or staining.

B. Store in a clean, dry area.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Sealers: VOC levels of sealers used during construction shall not exceed 100 g/l VOC limit.

2.02 MATERIALS – CUSTOM UPHOLSTERY

A. Foam Cushion: Provide *Qualux* polyurethane foam cushion material manufactured by Carpenter Company; refer to Fabrication section for thickness, density and IDL ratings.

B. Upholstery Fabric (UPH-1):

1. Manufacturer / Pattern: Momentum Textiles; *Silica Etc.*

2. Contents: 100% silicone.

3. Width: 54-inches.

4. Pattern Repeat: Horizontal: 6.125-inches; vertical: 4.875-inches.

5. Flammability: Class 1.

6. Color: Refer to Section 01 8419.

C. Upholstery Accessories:

1. Cushion Wrap: 1-inch thick bonded Dacron / polyester cushion wrap.

2. Zipper: Medium duty nylon, color matching fabric color, YKK or similar.

3. Welt Cord: 5/32-inch jute or preshrunk cotton.

4. Non-Slip Pad: Adhesive back rubber sheet, 6-8-inches wide by length of cushion, non-slip properties to keep cushions in place, black color.

5. Plywood: 5/8-inch thick APA Rated A-B sanded face Fir plywood, 5 ply minimum.

6. Panel Cleats: Fabricate interlocking 18 gauge galvanized sheet steel or aluminum fabricated in two pieces to allow concealed interlocking connection for wall attachment within thickness of metal, provide screw attachment to wall and item being supported.

2.03 FABRICATION – ROUND EDGE CUSHIONS

A. Verify field dimensions of benches and backs scheduled to receive cushions prior to fabrication to assure an exact fit.

B. Fabricate foam cushions as follows:

1. Seat Cushion Foam: Carpenter Company; *Qualux Q35 (Firm).*

a. Thickness: 4-inches or as dimensioned on the Drawings.

b. Density: 2.6 pounds.

c. IDL Rating: 35.

2. Seat Back Cushion Foam: Carpenter Company; *Qualux Q26 (Medium).*

a. Thickness: 4-inches or as dimensioned on the Drawings.

b. Density: 2.8 pounds.

c. IDL Rating: 26.

3. Cut foam cushion to size allowing adequate fullness for snug fit at ends.

4. Cut edges to a uniform 1-inch radius

5. Wrap upholstered face and edges with Dacron cushion wrap and bond to foam cushion with adhesive.

6. Refer to Drawings for cushion sizes.

C. Fabricate fabric cover for round edge cushions as follows:

1. Fabricate from Upholstery Fabric specified for the specific area.

2. Cut corners of fabric for vertical seams.

3. Sew in 4 vents on each bench seat concealed on back edge

4. Fabric shall wrap over round edge foam and be attached securely to back of plywood panel.

5. Sew seams on concealed inside of fabric.

6. Fabric cover shall fit tightly over cushion without deforming cushion shape, free of puckers, wrinkles or misfit.

D. Fabricate plywood backs to proper dimensions:

1. Drill 3/4-inch diameter holes at approximately 6-inches on center over entire back, do not splinter outside opposite cushion.

2. Sand perimeter and hole edges smooth.

3. Seal plywood with 2 coats of clear waterbase polyurethane varnish.

4. Install 1/4-inch thick hard rubber pads to underside of plywood to allow air space beneath cushion.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 20 0000

MECHANICAL GENERAL PROVISIONS

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The following is a summary of the Scope of Work, for the Mechanical Design/Build Subcontractor, from here on in referred to as Subcontractor.

B. The project consists of two new single-story Behavioral Health and Recovery Services Psychiatric Health Facilities in Bakersfield, CA.

1. The Base Bid shall include complete shell and core HVAC, Plumbing, and Fire Sprinkler design and installation including, certified drawings, all systems, equipment, materials, etc. as required and as outlined in the design drawing and specifications.

2. The mechanical documents consist of these design/build requirements.

C. Bidders are strongly encouraged to recommend cost saving material, equipment, and/or design alternatives.

D. Rebates: The Subcontractor is responsible for preparing all paperwork for applicable utility rebates for equipment provided under this contract. Rebates shall be payable to the Owner.

E. The Subcontractor shall provide all labor, materials, equipment, tools, plant, and shall perform all work to furnish the complete design and construction for HVAC, plumbing and fire protection systems as described herein. Complete systems shall be designed, constructed and coordinated to meet the intent of the architectural and structural design documents. Subcontractor shall install work within the initial space accommodations or make other provisions at no additional cost to the Owner or Contractor and maintain the initial architectural and structural integrity.

F. Subcontractor shall fully coordinate work with other contractors. Any cost of remedy for lack thereof shall be the responsibility of the Subcontractor.

G. Subcontractor shall complete work expeditiously and within requirements of published project schedule.

H. Subcontractor shall provide all items and work indicated herein as required for a complete and operational system. This includes all incidentals, equipment, appliances, services, scaffolding, supports, tools, supervision, labor, consumable items, fees, licenses, etc., necessary to provide complete systems. Start up, commission, and check out each item and system to provide fully operable systems. Certain terms such as "shall, provide, install, commissioning, startup" are not used in some parts of the Documents. This does not indicate that the items shall be less than completely installed or that systems shall be less than complete.

I. Subcontractor shall prepare and submit to the Contractor complete engineering plans, specifications, and calculations for the project. These documents shall be prepared, signed, and sealed by a Professional Engineer registered in the State of California regularly engaged in the design of similar facilities and systems. Engineering work shall be in accordance with all laws and regulations applying thereto.

J. Comply with all applicable governmental regulations. Comply with all Federal, State, City, and other applicable codes and ordinances. If any conflict arises between the Specifications or codes and ordinances, immediately notify the Contractor. Do not deviate from the Drawings and specifications nor install any work that may be in conflict with codes and ordinances until the conflict is resolved and the Architect reviews the solution.

K. Obtain and pay for all permits and pay all fees required by authorities having jurisdiction for work provided by Subcontractor, except for utility development charges. Pay all royalties or fees required in connection with the use of patented devices and systems.

L. Arrange for and schedule all tests required by Authorities Having Jurisdiction and public or private utilities.

M. The Subcontractor shall be responsible for attaining the system performance defined in this document.

N. The Architect shall act on the Owner's behalf as advisors on technical matters of interest to the Owner. Their involvement in this project shall, in no way, alleviate the statutory and professional requirements or obligations of the Subcontractor as the Professional Engineer of Record. The review of design, or installation shall, in no way, reduce or diminish the obligation, responsibility or liability of the Subcontractor or their professional consultants.

O. The Subcontractor shall be responsible for informing the Contractor of all concrete work required for installation of the mechanical systems. This work shall include equipment bases and inertia blocks as well as concrete curbs around equipment room floor penetrations. The Contractor will provide the aforementioned concrete work utilizing information provided by the Subcontractor.

P. The Subcontractor shall be responsible for informing the Contractor of all concrete penetrations required for installation of the mechanical systems. This work shall include plumbing and fire protection pipe penetrations through the floor, duct penetrations, etc. The Contractor shall provide the concrete penetrations and block outs utilizing information provided by the Subcontractor.

Q. The mechanical systems design and installation shall conform to the building architecture and structural systems. Subcontractor shall coordinate system design and construction documents with Architect, Contractor, Structural Engineer, Civil, Electrical Engineer, and other subcontractors. Any proposed deviations from these documents, due to the design or installation of the Mechanical systems, shall be in the form of a written request to the Contractor. The Contractor will coordinate the request and review process and will issue a written acceptance or rejection. Do not proceed with any work that is contingent upon receiving such approval until written authorization to do so is obtained from the Contractor. All requests for deviations shall be fully documented with reasons for the requests, benefits obtained by the Owner, impact on other associated design or construction trades and estimated additive or deductive cost impact on all construction trades. The Owner retains the right to approve or reject any request.

1.02 DESIGN CRITERIA

A. The design criteria and performance requirements described in this document generally reflect the owner's development requirements. The ideas presented have been integrated with the building's architecture and structure to form a total design concept. The design/build proposals shall conform to these mechanical criteria and the architectural and structural drawings. However, these documents are not intended to inhibit the participating teams from submitting alternate concepts or designs.

B. The Architect is responsible for the design process. All lines of communication shall be directed through the Contractor. All aspects of the mechanical design, which affect structural or civil engineering systems shall be referred to the Contractor who, in turn, will process the information through the Architect and appropriate consultants.

C. The Architect and the Owner will have the final decision with respect to system concepts, visual coordination, and acceptance of proposed products.

D. The Subcontractor shall accept direction through the Contractor with respect to performance of their contractual obligations. Subcontractor shall have a designated project representative and a back-up representative, either or both of whom shall attend all meetings, whether regularly scheduled or not.

E. Subcontractor shall meet with members of local regulatory authorities, utility companies and municipal service boards to coordinate their requirements with the project design and installation.

F. Architect and Owner reserve the right to review and comment on the mechanical design documents. Their reviews shall be in the form of comments which shall be considered either as interpretations of the original design/build proposal or clarification of the intent of the scope of work. Subcontractor shall respond to these review comments with written acceptance or rejection of each comment. The Owner or his technical representatives will not accept responsibility for the technical design of the project, which remains the responsibility of the Subcontractor. Mechanical design documents shall be submitted to the Architect for inclusion in the progress print sets, permit set, and construction documents set. Architect shall approve and provide direction on sheet sizing and sheet numbering. All Plans to be in similar format to Architect drawings.

G. The design shall include seismic support and bracing based upon a Seismic Importance Factor of II.

H. Comply with the applicable provisions of following (Edition in effect at Permit Submittal):

1. California Building Code (CBC) – Title 24, Part 2.

2. California Mechanical Code (CMC) – Title 24, Part 4.

3. California Plumbing Code (CPC) – Title 24, Part 5.

4. California Fire Code (CFC) – Title 24, Part 9.

5. California Electrical Code (CEC) – Title 24, Part 3.

6. California Green Building Standards Code – Title 24, Part 11.

7. Building Energy Efficiency Standards for Residential and Nonresidential Buildings – Title 24, Part 6.

8. City of Bakersfield

9. Kern County Public Health Services Department

I. Contractor shall follow the naming convention used by the Owner. Contractor shall submit all proposed naming convention to the Owner for written approval.

1.03 ALTERNATES

A. Voluntary alternates to the base proposal may be presented, at the design/build team's option. All such alternates shall include a description of the item, benefits obtained by the Owner and associated add or deduct cost. Creativity and ingenuity are encouraged in this regard; however, the impact imposed on the building's architecture and structure systems must be considered.

B. Any proposed alternates shall be submitted to supplement to the base proposal.

C. Request for bid alternates are listed in these documents.

1.04 GENERAL REQUIREMENTS

A. The Subcontractor or their professional consultants shall be required to carry, as Engineers of Record, professional liability insurance (errors and omissions), of sufficient policy value and acceptable deductible, to cover their acts as Engineer of Record for this project. The Subcontractor shall furnish evidence of professional liability insurance coverage to the owner for review and acceptance. Minimum policy coverage shall be $2,000,000.

B. Identify equipment with permanent nameplates that agree with subcontractor furnished as-built drawings.

C. Job Conditions:

1. Utility Connections: Arrange for, coordinate, and verify existing service locations and elevations. Include the cost in the base proposal of the connection to a point 5 feet outside the building line (remainder to be part of the general/civil contract).

2. Field Measurements: Establish lines and levels for each system and coordinate with other systems to prevent conflicts and maintain proper clearances and accessibility.

D. Fire stop and seal wall and floor penetrations and penetrations with materials that provide the same fire rating as the floor or wall. The fire stop materials shall be of the same type through the project. Provide fire dampers or combination fire/smoke dampers, as required.

E. The Subcontractor shall provide adequate means for and shall fully protect finished parts of the materials and equipment against damage from whatever cause during the progress of the work until final acceptance. Materials and equipment shall be covered in such a manner that no finished surfaces will be damaged or marred, and all moving parts shall be kept clean and dry.

F. At conclusion of each day's work, clean up and stockpile on site all rubbish, debris and trash accumulated during the day as a result of work of this Section. Sidewalks and street adjoining the property shall be kept broom clean and free of debris, rubbish, trash, and obstructions of any kind caused by work of this section which will affect the conditions of streets, walks, utilities and property.

G. Warranty:

1. Submit a single guarantee stating that all portions of the work are in accordance with Contract requirements. Guarantee all work against faulty and improper material and workmanship for a period of two (2) years from date of substantial completion. Within 48 hours after notification, correct any deficiencies that occur during the guarantee period at no additional cost to the Owner, all to the satisfaction of the Owner. Obtain similar guarantees from subcontractors, manufacturers, suppliers and sub trade-specialists.

2. Be responsible for leaks in pipes during Guarantee Period. Repair such leaks, at no cost to Owner, within 24 hours of notice by the Owner. Repair leaks which occur prior to the completion of this Subcontract at once. Be responsible for any damage caused by such leaks and repair thereof and reimburse Owner for expenses incurred. The subcontractor shall indemnify the Owner, the Architect and Contractor against loss liability, damage or expense, including reasonable attorney's fees, in connection with any claim resulting from such leaks, which may be asserted by any other third party. Owner reserves the right to contract with others for remedy of guarantee deficiencies and invoice Subcontractor for such work.

1.05 SUBMITTAL REQUIRMENTS

A. The Architect shall be the sole judge of submittals completeness, incorporate all required information in to the submittal as directed.

B. The Subcontractor shall submit all calculations and shop drawings to the Contractor for review and comment. Shop drawings shall be reviewed and stamped by Engineer of Record prior to submittal. By virtue of reviewing and commenting on such calculations and shop drawings, the Owner's Representatives and Architect do not accept any responsibility for the accuracy or appropriateness of the calculations, since that responsibility rests solely with the Subcontractor.

C. Peer Review:

1. The contractor shall participate in a peer review conducted by the designated Owner’s Representative to review the drawings, specifications, calculations, and equipment cut sheets for compliance with the contract documents. The peer review shall be conducted upon submission of the Permit level documents to the City. The contractor is responsible for notifying the Owner a minimum of two (2) weeks prior to the Permit submission to the City.

D. Proposal, Design Documents, Equipment Submittals and As-Built Documentation:

1. Proposal Submittal:

a. Include a price breakdown in accordance with the Invitation to Bid.

b. A written technical description of the proposed systems broken in the following categories:

i. Division 22 - Plumbing

ii. Division 23 – Heating, Ventilating, and Air Conditioning

c. Provide “cut sheets” for major equipment and materials. Manufacturers submitted shall become the approved manufacturer and shall be provided unless altered by Change Order. Information shall include standard product literature, project specific power requirements, dimensions and weights.

d. Designation of Professional Engineer.

e. Proof of professional liability insurance.

f. Alternatives proposed (if any).

g. Provide a separate copy of all the submittals to the Owner.

2. General Drawing Requirements:

a. All drawings, except record drawings, shall be prepared with AutoCAD 2010 or newer software.

b. Use the Architect's drawings as x-refed backgrounds.

c. Drawings shall be on titleblocks the same size as the Architectural drawings. Titleblocks shall be in paper space and print at 1:1. Plans shall be located in windows to model space.

d. Each submittal of drawings shall be accompanied with a CD-ROM of all electronic files.

3. Equipment Submittals:

a. The contractor shall submit to the designated Owner's Representative, for approval, complete information on all equipment and materials to be provided on the project. At a minimum provide four (4) copies of the manufacturer's catalog data and engineering data.

b. All mechanical material and equipment submittals shall be submitted under one comprehensive submittal package. Submission of individual specification sections or equipment cut sheets is unacceptable and will be rejected.

4. Record Drawings:

a. Maintain up-to-date record drawings of changes to mechanical and deviations from mechanical drawings, including locations, sizes, or arrangement. Drawings shall be full-size of the Construction Documents. All work shall be clearly and neatly marked in red pencil.

b. Locate concealed work accurately to scale and dimension from column lines, concealed piping and ductwork.

5. As-Built Drawings:

a. Use Record Drawings to produce As-Built Drawings.

b. Furnish owner with a set of reproducible drawings in AutoCAD 2010 or newer software and in PDF Format. Provide a CD-ROM of all electronic files.

6. Construction Documents:

a. Construction documents shall consist of coordinated drawings and specifications signed and sealed by a Professional Engineer registered in the State of California ready for permit submission to the authorities having jurisdiction; containing, as a minimum, the following:

b. Heating, cooling and ventilation calculations for all tenant improvement spaces.

c. Equipment schedules defining performance characteristics of all items of equipment. Rotating equipment, such as fans and pumps, shall include efficiencies, brake horsepower and motor sizes.

d. Riser diagrams for plumbing systems showing all locations and areas served.

e. HVAC, plumbing, and fire protection plans, 1/8" scale. Systems distribution and equipment location shall be shown for each floor. Ductwork over 12" shall be shown double line. Number drawings to easily correlate to architectural numbering system; coordinate with architectural drawing list. Plans shall show coordination with all other construction trades. Drawing size shall be the same as the architectural drawings.

f. Miscellaneous details and large-scale plans and sections necessary to show coordination in congested areas.

g. Site plans showing extent of contract, work and point of interface with site utilities work.

h. Complete specifications defining a scope of work, equipment items, materials, and means and methods of installation. All drawings and specifications shall be prepared in the format designated by the Contractor.

i. Documentation suitable for building department approval demonstrating envelope compliance with the International Energy Code shall be prepared by the Consultant. Obtain a copy of this document from the Architect.

E. Coordination:

1. This performance specification indicates the conceptual arrangement of systems. Subcontractor is responsible to conform the work to the requirements shown on the architectural and structural drawings. Investigate the structural and finish conditions affecting the work and arrange the work accordingly. Provide such fittings, valves and accessories as may be required to meet such conditions. Carefully check space requirements with other trades to insure that all material can be installed in the spaces allotted thereto, including above the finished suspended ceilings.

2. Transmit to other trades, via the Contractor, all information required for work to be provided under this Section in ample time for installation.

3. Wherever work interconnects with work of other trades, coordinate with these trades to insure that all trades have the necessary information to properly install all connections and equipment.

4. Furnish and set all sleeves for penetration of pipes and ducts through structural masonry and concrete walls and floor and elsewhere as required for the proper protection of each pipe and duct passing through building surfaces.

5. Provide required supports and hangers for major items of piping and equipment, so that loading will not exceed allowable loadings of structure. Submit equipment weights and loadings, including method of attachment, to the Contractor for review.

6. Coordinate and schedule work with other trades and the construction sequence. Install and coordinate the mechanical work in cooperation with other trades installing interrelated work. Before installation, take proper provisions to avoid interferences in a manner reviewed by the Contractor. All changes required in the work of the Subcontractor, caused by their neglect to do so, shall be made by them at their own expense.

7. Required anchor bolts, sleeves, inserts and supports shall be furnished by the Subcontractor as necessary for equipment provided by Subcontractor. Such anchor bolts, sleeves, inserts and supports shall be installed, except as otherwise agreed to, by the trade furnishing and installing them. Location of anchor bolts, sleeves, inserts and supports shall be coordinated by the Subcontractor requiring them to insure that they are properly installed. Any expense resulting from the improper location of anchor bolts, sleeves, inserts and supports shall be paid for by the Subcontractor with the responsibility for directing their proper locations.

8. Adjust location of pipes, equipment, ducts, etc. to accommodate the work and to prevent interferences, both anticipated and encountered. Determine the exact route and location of each pipe and duct prior to fabrication. Right of Way: Lines which pitch shall have the right of way over those which do not pitch. For example, plumbing drains normally have right of way. Lines whose elevations cannot be changed shall have right of way over lines whose elevations can be changed. Make offsets, bends and changes in direction of pipes and ducts as required to maintain proper head room and pitch of sloping lines whether or not indicated on the Drawings.

9. Install all mechanical work to permit removal (without damage to other parts) of compressors, filters, fan shafts and wheels, belt guards, sheaves and drives and all other parts requiring periodic replacement or maintenance. Provide manufacturer's recommended clearances around equipment for service and proper operation. All installations shall be coordinated with other trades to allow for reasonable and safe access for maintenance and inspection.

10. Provide access panels in equipment, ducts, etc., as required for inspection of equipment and for proper maintenance. Coordinate the locations and sizes of all the access panels with the Owner.

F. Operation and Maintenance Manuals (O&M):

1. Provide three copies in three-ring binders.

2. Provide a table of contents, numbered tabs to match, with material divided by type.

3. Include manufacturer's general literature on all items of equipment. "White-out" or "Cross-out" all material not applicable to the equipment installed.

4. Include manufacturers' operating and maintenance instructions when different from general literature.

5. Include control Sequence of Operation, wiring, and control diagrams.

6. Provide a separate electronic copy to the Owner.

PART 2 - PRODUCTS

2.01 PRODUCT AND MATERIAL REQUIREMENTS

A. If products and materials for specific items or systems are specified, use those specified as representative of quality desired. If products and materials are not specified, use quality products and materials subject to review and acceptance by the Architect and Owner.

B. All products and materials shall be new, clean, free of defects and free of damage and corrosion.

C. Ship and store all products and materials in a manner which will protect them from damage, weather and entry of debris. If items are damaged in the opinion of the Architect, Owner's Representatives, or Contractor do not install, but take immediate steps to obtain replacement or repair.

PART 3 - EXECUTION

3.01 INSTALLATION

A. The Subcontractor shall prepare shop drawing submittals in accordance with submittal schedule. These submittals shall be reviewed and stamped by the Engineer of Record. Shop drawings shall show compliance with the Construction documents, coordination with all construction disciplines, accuracy of technical and dimensional data, and of the proposed manufacturer.

B. Attend regularly scheduled construction coordination meetings and other meetings, as requested by Contractor. Members of the Subcontractor's staff, who have direct knowledge of the mechanical design, shall accompany their respective installation counterparts at these meetings.

C. The Engineer of Record shall perform periodic site observations, on an average of once per month basis during construction and twice per month during start-up and commissioning, and prepare a status of installation report including deficiencies with respect to the contract documents. These site observations shall be performed in the presence of the Architect and/or the Owner's representatives, at their discretion.

D. Provide a written description of all observed field coordination problems, along with proposed resolutions, to the Contractor for distribution.

E. The Architect and the Owner may perform additional periodic observations, which may generate deficiency comments. Respond to these published deficiency lists within a two-week period.

F. The Engineer of Record shall perform final punch list inspections and submit to the Contractor.

G. Perform all system tests required by regulatory or code agencies in the presence of the appropriate local authorities, the Contractor and the Owner.

3.02 CLOSEOUT REQUIREMENTS

A. After completion of work and prior to final acceptance, thoroughly clean all parts of the work, remove all debris and surplus equipment and leave installation in perfect condition, ready for use.

B. Final Submittal.

C. Operation and Maintenance Manuals.

D. Testing & Balancing Report.

E. Record Drawings (As-Built).

F. Complete, “signed off,” Permits. Copies are acceptable.

G. Completed Warranty.

END OF SECTION

SECTION 21 1313

FIRE PROTECTION SYSTEMS

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Under the Base Bid provide all material, labor, equipment, design, and services necessary to perform the installation of complete fire protection coverage throughout, in accordance with the required and advisory provisions of the latest edition of the State of California – Title 24 and N.F.P.A. #13 as accepted by the Authority having Jurisdiction and project specifications.

B. System types to be installed are as follows:

1. Wet pipe automatic fire protection sprinkler system.

C. The Contractor is to obtain a permit and final approval from the Authority Having Jurisdiction for the fire protection sprinkler system. All permits, fees for plan review, inspections, testing, etc. shall be included in the bid proposal.

D. The Fire Protection Sprinkler System Contractor "Start Point" will be at a point 5'-0" outside of the building at a supply pipe provided by the Civil Contractor.

1.02 DESIGN CRITERIA

A. Fire System Water Supply:

1. Base hydraulic calculations on a flow test performed in November of 2019 of 65 p.s.i. static pressure with a residual pressure of 45 p.s.i. while flowing 2,015 g.p.m. Test hydrant is located at 709 Workman Street.

B. Size piping to provide the required density when the system is discharging over the entire most demanding area.

C. Sprinkler head discharge shall be uniform throughout the area in which the sprinkler heads will open. Discharge from individual heads in the hydraulically most remote area shall be at a minimum of 100% the specified density.

D. Using the "Pipe Schedule" method to determine pipe sizing will not be allowed.

E. Basing hydraulic calculations upon the "Room Design" method to determine pipe sizing will not be allowed.

F. Application rates to horizontal surfaces below the sprinklers (floor area) for Light Hazard Occupancy, Ordinary Hazard Group I Occupancy, and Ordinary Hazard Group II Occupancy spaces shall be from N.F.P.A. #13.

G. Hose stream allowances for Light Hazard Occupancy and Ordinary Hazard Occupancy shall be from N.F.P.A. #13.

H. An equivalent "K-factor" for sprinkler head drops or sprigs (stub-ups) will not be acceptable.

I. A margin in the hydraulic calculations shall be maintained between the system demands and water availability. The margin shall consist of 5 p.s.i. or 10% depending upon whichever is greater and is based upon the available static pressure.

1.03 GENERAL

A. Drawings, General Conditions, and Supplementary Conditions of the Contract, including Division 0 and Division 1 Specification Sections apply to work of this Division.

B. Codes and agencies having jurisdictional authority over Fire Protection installations.

1. California Building Code (CBC) – Title 24, Part 2.

2. California Electrical Code (CEC) – Title 24, Part 3.

3. California Mechanical Code (CMC) – Title 24, Part 4.

4. California Plumbing Code (CPC) – Title 24, Part 5.

5. California Fire Code (CFC) – Title 24, Part 9.

6. City of Bakersfield.

7. Office of Statewide Health Planning and Development (OSHPD).

8. National Fire Protection Association (N.F.P.A.).

9. California Water Service.

C. The Fire Protection Contractor shall be responsible for reviewing all architectural, civil, electrical, mechanical, plumbing, structural, fire alarm, and fire protection drawings.

D. After award of the project, the Contractor shall verify available water supply with a flow test recorded within six months of bid date. If a new flow test is required, the Contractor shall coordinate with local authorities for a new flow test and the fees associated with a new flow test shall be included in the bid. Information obtained from this flow test and indicated on the drawings shall be: test hydrant static pressure, test hydrant residual pressure, associated pitot reading from flowing hydrant, test hydrant location, test hydrant elevation, and underground water main configuration.

1.04 SUBMITTALS

A. The fire protection sprinkler system contractor shall submit shop drawings, hydraulic calculations, seismic bracing calculations, and manufacturer's data sheets to the local Authority Having Jurisdiction and Architect/Engineer for review and shall be approved by all entities prior to the purchase, fabrication, or installation of any system component.

B. The fire protection submittals shall be a single complete package consisting of shop drawings, hydraulic calculations, seismic bracing calculations, and manufacturer's data sheets. Partial submittal packages will not be allowed.

C. Close out submittals shall include the following at a minimum:

1. Completion of all punch list items

2. Operation instruction period to Owner's satisfaction

3. Permit Submittal

4. As-Built drawings on electronic media in AutoCAD 2019 format delivered to Architect

5. Signed Warranty Letter

6. Operations and Maintenance Manuals

7. Completed and Signed Test Certificates

8. Backflow Preventer Full Forward Flow Test Certificate

PART 2 - PRODUCTS

2.01 MATERIAL REQUIREMENTS

A. Devices, equipment, and piping for fire protection service shall be U.L. listed or Factory Mutual Global approved for use in sprinkler systems.

B. All fire protection sprinkler system piping shall be black steel. The use of CPVC pipe and fittings is not allowed.

C. Provide black Schedule 40 steel pipe for sizes less than 8 inches or black Schedule 30 steel pipe for sizes 8 inches and greater for threaded or cut groove connections. Piping with a lesser schedule value (thinner walled pipe i.e. "Dyna-Thread", XL, Schedule 10, or other Schedule 40 "Replacement" pipe) will not be allowed for threaded or cut groove connections regardless of the corrosion resistance ratio.

D. Provide black steel pipe to be either having a minimum wall thickness in accordance with Schedule 10, Schedule 40, U.L. listed, or Factory Mutual Global approved pipe having a U.L. corrosion resistance ratio equal to or greater than 1.0 for roll groove or welded connections.

E. All material used on the project shall be new and free of defects.

F. Provide minimum nominal ½-inch orifice commercial sprinkler heads with a release mechanism meeting the requirements of N.F.P.A. #13 for thermal sensitivity and temperature rating.

G. Provide bronze uprights in exposed areas (no ceilings) and in ceiling voids.

H. All quick response sprinkler heads shall be glass bulb style.

I. Provide white finished institutional sprinklers with white finished escutcheons in all ceilings throughout the building.

J. Provide bronze uprights in exposed areas (no ceilings) and in ceiling voids.

K. All sprinkler heads that utilize "O-Rings" will not be allowed.

L. Provide sprinkler head guards on exposed piping installed at an elevation less than 8'-0", or in areas subject to mechanical damage.

M. Each system riser shall be provided with a pressure relief valve not sized less than ½" in size.

N. Provide a water pressure gauge in the following locations at a minimum.

1. Supply side of the backflow preventer check valves to read the system supply pressure.

2. On the system riser above all check valves, above all alarm valves, or as part of a “Shot Gun" riser assembly to read the system pressure.

O. The fire protection sprinkler system contractor shall provide oversized escutcheon trim rings in all acoustical tile ceilings to conceal oversized ceiling system penetrations to meet the requirements of the California Building Code (CBC) and ASCE 7.

P. Provide an automatic air vent with a ball valve at the high point of each wet pipe automatic fire protection sprinkler system in an accessible location.

2.02 SIGNAGE

A. The fire protection sprinkler system contractor shall provide a typed list of all sprinkler heads installed in the project per the requirements of N.F.P.A. #13 that is to be placed inside the spare sprinkler cabinet.

B. Provide a permanently marked metal or engraved rigid plastic identification sign with proper lettering and secured with corrosion resistant wire, chain, or other approved methods for all control valves, drains, inspector's test valves, and fire department connection zones in accordance with N.F.P.A. #13.

C. Each sprinkler system riser shall have the N.F.P.A. #13 required hydraulic sign placed near the control valve that is permanently marked and made either of weatherproof metal, rigid plastic, or weatherproof tyvek.

D. Each sprinkler system riser shall have the N.F.P.A. #13 required general information sign placed near the control valve that is permanently marked and made either of weatherproof metal, rigid plastic or weatherproof tyvek.

E. The fire protection sprinkler system contractor shall provide a sign that is to be attached to the backflow preventer that is permanently marked and made either of weatherproof metal, rigid plastic or weatherproof Tyvek containing the following information:

1. Pressure on the supply side of the backflow preventer assembly prior to testing.

2. Pressure on the discharge side of the backflow preventer assembly prior to testing.

3. Pressure on the supply side of the backflow preventer assembly during testing.

4. Pressure on the discharge side of the backflow preventer assembly during testing.

5. Total pressure drop across the backflow preventer assembly during testing.

6. System test flow rate based upon hydraulic system demands.

7. Manufacturer's documented pressure drop data from the pressure drop flow curve.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Installation, workmanship, fabrication, assembly, erection, examination, inspection, and testing shall be in accordance with N.F.P.A. #13.

B. Install piping straight and true to bear evenly on hangers and supports. Hangers for piping to attach to structural members with no hanger being attached to acoustical ceiling tiles or gypsum wallboard ceilings.

C. All piping in finished areas shall be installed concealed above the ceiling space unless specifically noted otherwise.

D. Install piping at such heights and in such a manner so as not to obstruct any portion of windows, doorways, passageways, or lights. Coordinate installation of piping with all trades (mechanical, electrical, plumbing, and structural) to avoid conflicts and offset piping as required to clear any interferences that may occur.

E. Install piping at such heights and in such a manner so as not pose hazards to normal walking head heights, impact the minimum clear height requirements or present tripping hazards.

F. Ends of new piping and existing piping affected by Contractor's operations shall be thoroughly cleaned of water, cutting oil, and foreign matter. Keep piping systems clean during installation by means of plugs or other approved methods and securely close open ends of piping when work is not in progress to prevent entry of foreign matter. Inspect all piping before placing into position for foreign matter and remove as necessary.

G. All sprinkler system drops shall be restrained against movement in all directions (upward, downward, and sideways).

H. Sprinkler heads located in acoustical ceiling tiles shall be installed in a consistent pattern, centered both directions within the ceiling tiles (12" from a ceiling grid), and placed to avoid all lights, air diffuser grilles, and obstructions.

I. Sprinkler heads located in rooms that contain entire gypsum wallboard ceilings shall be installed in a consistent pattern within the gypsum wallboard ceiling and placed to avoid all surface mounted lights, air diffuser grilles, and obstructions.

J. Sprinkler heads in exposed areas shall be installed in a consistent pattern while avoiding all lights, ductwork, and structural members.

K. The Fire Department Connection shall be installed in the yard.

L. The backflow preventer shall be installed in the yard and of the type that conform to local water purveyor requirements.

M. Provide backflow full forward flow testing hose valves approximately 2'-0" to 4'-0" above the finished grade in a location on the exterior wall.

N. Provide a normally closed butterfly valve on the piping utilized for full forward flow testing of the backflow preventer.

O. Provide a 10" 24 Volts D.C. electric alarm bell and back box of the approved weatherproof type that is powered through the Fire Alarm Control Panel.

P. Provide a sight glass and inspector's test valve at the system riser that is piped to discharge on the exterior of the building.

Q. All drops to sprinkler heads installed in ceilings shall be hard piped, the use of flexible piping is not allowed.

R. Provide a seismic separation assembly that is capable of movement in all 3 axes, seismic separation assemblies made by utilizing six (6) 90° elbows with flexible grooved couplings will not be allowed.

3.02 TESTING

A. Hydrostatically test each system at 200 P.S.I. or 50 P.S.I. in excess of the systems working pressure (whichever is greater), for a 2-hour period with no leakage or reduction in pressure.

B. Test the alarms and other devices by flowing water through the inspector's test connection.

C. The backflow preventer assembly shall be tested at system flow demand, including all applicable inside hose stream allowances to verify the pressure drop across the backflow preventer.

D. Correct defects in work provided by the Contractor and make additional tests until the system(s) comply with contract requirements.

E. Furnish Architect with three (3) copies of certificates required by testing agencies.

END OF SECTION

SECTION 22 0500

PLUMBING SYSTEMS

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The work covered by this subcontract includes the designated construction described herein including all labor necessary to perform and complete such construction, all materials and equipment incorporated or to be incorporated in such construction, and all services, facilities, tools and equipment necessary or used to perform and complete such construction.

B. Design Build a complete engineered Plumbing System to be incorporated into permit documents and receive approval from permitting agencies.

C. Sanitary Waste and Vent System:

1. Provide a complete soil, waste, and vent system from plumbing fixtures, floor drains and mechanical equipment arranged for gravity flow to a point of connection to the existing sewer 5’-0” outside of building. Coordinate point of connection and elevation.

2. See Architectural drawings for the new fixtures.

3. Materials shall be as specified under Part 4 of this Section.

D. Domestic Water Systems:

1. Provide cold-water distribution to fixtures requiring cold water. See architectural drawings for these fixtures.

2. Provide hot water distribution to fixtures requiring domestic hot water. See architectural drawings for these fixtures.

3. Material: Copper, Type K hard drawn below ground and Type L hard drawn copper or PEX aboveground.

E. Utility Services:

1. Provide storm service to the building from utility connection points 5’-0” outside of building.

2. All services shall be installed in accordance with the provisions of the Authorities Having Jurisdiction.

3. Coordinate and pay for utility plumbing permits and inspection fees.

F. Insulation:

1. Insulate all domestic hot water and cold-water piping in accordance with the Building Energy Efficiency Standards for Residential and Nonresidential Buildings – Title 24, Part 6.

2. Insulate all domestic hot water and cold-water piping inside the building up to the stop valves at the fixtures.

3. Waste: Waste under lavatories shall comply with ADA requirements. Insulate or otherwise protect from direct contact with waste under lavatories. There shall be no sharp or abrasive surfaces under lavatories. Comply with all ADA requirements.

4. Insulate all above grade horizontal storm drain piping.

5. Material: Glass Fiber with PVC jacket or Elastomeric.

G. Provide Accessories for a Complete Installation:

1. Hangers, Supports and Guides. Increase hangers for plastic pipe (closer spaced hangers per code).

2. Fire Stopping for Pipe Penetrations.

3. Pipe Penetrations and Drains Counter Flashing.

4. Core Boring through Foundation and Sleeves through Structural Beams only where approved.

5. Access Doors.

6. Condensate drains with 4-inch traps at each air conditioning unit (minimum ¾" pipe).

1.02 DESIGN CRITERIA

A. Domestic Water Supply System:

1. Velocity - maximum 8 fps on cold water piping and 5 fps on hot water piping.

2. Water flow requirements shall be developed in accordance with appendix A of the Uniform Plumbing Code. Estimated main sizes are included on the bridging documents. Final sizes are to be determined.

3. Generate domestic hot water with 199 MBH gas instantaneous water heaters, located in the Mechanical Room. Provide recirculation system with no more than 21-feet between any typical fixture and an active hot water line. Distances between lavatories and the active hot water line shall not exceed 2 feet.

4. Provide water coolers in common corridors. Locations shall be as per the architectural documents.

5. Provide six (6) non-freeze wall hydrants at building exterior separated 100 feet apart.

6. Avoid running water or drain piping in or above telephone equipment rooms, electrical rooms, server rooms, imaging areas or any other room where leaks could create a hazard or damage, except piping which serves equipment in these rooms. Drip pan may be used for protection from leaks with prior written approval from the Owner.

7. Provide a domestic water backflow preventer inside the building. Locate in the Mechanical Room.

8. Provide seismic bracing and engineered design for plumbing components, as required.

B. Sanitary Waste and Vent System:

1. The sanitary waste main size is estimated at 4". Final pipe size to be determined.

2. Provide grease waste from commercial kitchen. Piping is estimated to at 4". Final pipe size is to be determined.

3. Slope waste, grease waste, and vent piping as required by code.

4. Provide one (1) floor mounted mop sink in each Janitor Closet.

5. Provide seismic bracing and engineered design for plumbing components, as required.

C. Design shall comply with the following standards and ordinances.

1. Uniform Plumbing Code.

2. California Building Code (CBC) – Title 24, Part 2.

3. California Mechanical Code (CMC) – Title 24, Part 4.

4. California Plumbing Code (CPC) – Title 24, Part 5.

5. California Fire Code (CFC) – Title 24, Part 9.

6. California Electrical Code (CEC) – Title 24, Part 3.

7. California Green Building Standards Code – Title 24, Part 11.

8. Building Energy Efficiency Standards for Residential and Nonresidential Buildings – Title 24, Part 6.

9. City of Bakersfield.

10. Kern County Public Health Services Department.

1.03 SUBMITTALS

A. Proposal Submittal: Provide in accordance with Mechanical General Provisions.

B. Coordination Submittal: Provide in accordance with Mechanical General Provisions and the following.

1. Large scale plans in congested areas.

2. Sections as required of clarity.

3. Riser diagrams.

C. Construction Document Submittal: Provide in accordance with Mechanical General Provisions.

D. Final Submittal: Provide in accordance with Mechanical General Provisions.

PART 2 - PRODUCTS

2.01 MATERIAL REQUIREMENTS

A. Plumbing trim shall be standard lines of first quality manufactured by American Standard, Chicago Faucet, or Delta. See Architectural plans for location and quantity of fixtures.

B. Plumbing Fixtures:

1. Water Closet

a. Siphon jet, elongated bowl, vitreous china, white, ADA compliant, flushometer.

b. Approved Manufacturers: Intersan by Aqua Design Manufacturing, American Standard, Zurn, Kohler, Sloan, or approved equal.

2. Ligature-Resistant Water Closet:

a. Siphon jet, elongated bowl, 16 gage (minimum) 304 stainless steel with exterior surfaces powder coated white, wall supply, on-floor, wall waste, (1.28 GPF). Provide with concealed Wall Supply flush valve and ligature resistant toilet seat.

b. Approved Manufacturers: Intersan by Aqua Design Manufacturing, Whitehall, Willoughby, or approved equivalent.

3. Lavatory:

   a. Vitreous china, overflow, white, ADA compliant with faucet, stops, supplies, flow restrictors, and 17-gauge P-Trap.

   b. Approved Manufacturers: Intersan by Aqua Design Manufacturing, American Standard, Zurn, Kohler, or approved equal.

4. Ligature Resistant Lavatory:

   a. Cast polymer resin (stain, impact, and burn resistant material), white, ADA compliant with drain assembly, selected valve, control, plumbing, and thermostatic mixing valve, and stainless-steel mounting pedestal.

   b. Approved Manufacturers: Intersan by Aqua Design Manufacturing, Whitehall, Willoughby, or approved equivalent.

5. Sinks:

   a. 18-gauge stainless steel sized to meet architectural requirements. ADA compliant were shown on Architectural Plans.

   b. Approved Manufacturers: American Standard, Zurn, Kohler, or approved equal.

6. Ligature Resistant Drinking Fountain:

   a. Ligature resistant, rear mounted drinking fountain, single user fixture. Constructed on 14-gauge, Type 304 stainless steel, ligature resistant bubbler, slow drain, EB elbow waste, 4-point mounting, and ADA compliant.

   b. Approved Manufacturers: Whitehall, Willoughby, or approved equivalent.

7. Miscellaneous Fixtures:

   a. Other fixtures/fittings shall be as per plans and schedules.

C. Drains:

1. Ligature Resistant Floor Drains:

   a. Cast-iron body, see page flange, clamping device and hub outlet. Ligature resistant designed with internal gusset system. Finish to be chrome.

   b. Approved Manufacturers: Intersan by Aqua Design Manufacturing, Whitehall, J.R. Smith, or approved equivalent.

2. Sanitary Waste and Vent and Condensate Pipe and Fittings:

   a. Flanges and unions may be used on aboveground pressure piping unless otherwise indicated.

   b. Aboveground, soil and waste piping NPS 4 (DN 100) and smaller shall be any of the following:

      i. Hubless, cast-iron soil pipe and fittings; CISPI hubless-piping couplings; and coupled joints.

      ii. Copper DWV tube, copper drainage fittings, and soldered joints.

      iii. Dissimilar Pipe-Material Couplings: Shielded, nonpressure transition couplings.

      iv. PVC is not acceptable for use in return air plenums.

   c. Aboveground, vent piping NPS 4 (DN 100) and smaller shall be any of the following:

      i. Hubless, cast-iron soil pipe and fittings; CISPI hubless-piping couplings; and coupled joints.

      ii. PVC is not acceptable for use in return air plenums.

   d. Underground, soil, waste, and vent piping NPS 4 (DN 100) and smaller shall be any of the following:

      i. Hubless, cast-iron soil pipe and fittings; CISPI hubless-piping couplings; and coupled joints.

      ii. Solid wall PVC pipe, PVC socket fittings, and solvent-cemented joints.

      iii. Dissimilar Pipe-Material Couplings: Shielded, nonpressure transition couplings.

   e. Condensate waste piping shall be any of the following:

      i. Drawn-temper copper tubing, Type DWV, ASTM B 306, copper drainage pattern fittings and soldered joints.

      ii. Drawn-temper copper tubing, Type M, ASTM B 88 wrought copper fittings and soldered or pressure-seal joints.

iii. PVC tubing, Schedule 40, ASTM D 1785 and solvent weld socket fittings.

a) PVC is not allowed to be installed in Return Air Plenum locations. Coordinate with HVAC.

b) PVC is not allowed in exterior applications.

c) PVC is not allowed for use in Food Service applications.

D. Domestic Water Pipe and Fittings:

1. Copper, Type K hard drawn underground and Type L hard drawn copper or PEX aboveground.

E. Hanger and Supports:

1. Hangers: Adjustable clevis type.

2. Inserts: Malleable iron.

3. Saddles: At hanger points for insulating piping.

PART 3 - EXECUTION

3.01 WARRANTY

A. See Mechanical General Provisions for warranty requirements.

3.02 INSTALLATION

A. General:

1. Where hot and cold-water supply pipes connect to a combination supply fitting with shutoff valve on its discharge, equip each hot and cold-water supply pipe with a composition disc, swing check valve ahead of the supply fitting.

2. Provide funnel for drains receiving indirect waste from any heating or ventilating equipment.

3. Provide vibration isolation and shock absorption devices to eliminate noise of system.

4. After completion of water piping installation, flush system thoroughly. Submit a sample of water to the Water Department to determine compliance with Water Department standards. If sample is not in compliance, sterilization shall be performed as follows:

5. Sterilize all water piping, 8-hour sterilization contact time; 50 parts per million chlorine concentration. After sterilization period open all valves several times; follow by flushing with clean water until residual chlorine is less than 0.2 parts per million.

END OF SECTION

SECTION 22 1113

FACILITY WATER DISTRIBUTION PIPING

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes water-distribution piping and related components outside the building for fire service mains.

B. Utility-furnished products include water meters that will be furnished to the site, ready for installation.

1.02 DEFINITIONS

A. EPDM: Ethylene propylene diene terpolymer rubber.

B. LLDPE: Linear, low-density polyethylene plastic.

C. PA: Polyamide (nylon) plastic.

D. PP: Polypropylene plastic.

E. PVC: Polyvinyl chloride plastic.

1.03 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Include rated capacities and shipping, installed and operating weights. Indicate materials, finishes, dimensions, required clearances, and methods of assembly of components and piping and wiring connections for the following:

1. Backflow preventors and water regulators.

2. Drain valves, hose bibs, hydrants, and hose stations.

C. Shop Drawings: Detail precast concrete vault assemblies. Indicate dimensions, method of field assembly, and components.

1.04 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: For piping and specialties including relation to other services in same area, drawn to scale. Show piping and specialty sizes and valves, meter and specialty locations, and elevations.

B. Field quality-control test reports.

1.05 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For water valves and specialties to include in emergency, operation, and maintenance manuals.

1.06 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Comply with requirements of utility company supplying water. Include tapping of water mains and backflow prevention.

2. Comply with standards of authorities having jurisdiction for potable-water-service piping, including materials, installation, testing, and disinfection.

3. Comply with standards of authorities having jurisdiction for fire-suppression water-service piping, including materials, hose threads, installation, and testing.

B. Piping materials shall bear label, stamp, or other markings of specified testing agency.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

D. Comply with ASTM F 645 for selection, design, and installation of thermoplastic water piping.

E. Comply with FMG's "Approval Guide" or UL's "Fire Protection Equipment Directory" for fire-service-main products.

F. NFPA Compliance: Comply with NFPA 24 for materials, installations, tests, flushing, and valve and hydrant supervision for fire-service-main piping for fire suppression.

G. NSF Compliance:

1. Comply with NSF 14 for plastic potable-water-service piping. Include marking "NSF-pw" on piping.

2. Comply with NSF 61 for materials for water-service piping and specialties for domestic water.

1.07 DELIVERY, STORAGE AND HANDLING

A. Preparation for Transport: Prepare valves, including fire hydrants, according to the following:

1. Ensure that valves are dry and internally protected against rust and corrosion.

2. Protect valves against damage to threaded ends and flange faces.

3. Set valves in best position for handling. Set valves closed to prevent rattling.

B. During Storage: Use precautions for valves, including fire hydrants, according to the following:

1. Do not remove end protectors unless necessary for inspection; then reinstall for storage.

2. Protect from weather. Store indoors and maintain temperature higher than ambient dew-point temperature. Support off the ground or pavement in watertight enclosures when outdoor storage is necessary.

C. Handling: Use sling to handle valves and fire hydrants if size requires handling by crane or lift. Rig valves to avoid damage to exposed parts. Do not use handwheels or stems as lifting or rigging points.

D. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.

E. Protect stored piping from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor when storing inside.

F. Protect flanges, fittings, and specialties from moisture and dirt.

G. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

1.08 PROJECT CONDITIONS

A. Interruption of Existing Water-Distribution Service: Do not interrupt service to facilities occupied by County or others unless permitted under the following conditions and then only after arranging to provide temporary water-distribution service according to requirements indicated:

1. Notify County Construction Manager no fewer than five days in advance of proposed interruption of service.

2. Do not proceed with interruption of water-distribution service without County Construction Manager's written permission.

1.09 COORDINATION

A. Coordinate connection to water main with utility company.

PART 2 - PRODUCTS

2.01 DUCTILE-IRON PIPE AND FITTINGS

A. Mechanical-Joint, Ductile-Iron Pipe: AWWA C151, with mechanical-joint bell and plain spigot end unless grooved or flanged ends are indicated.

1. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.

2. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

B. Push-on-Joint, Ductile-Iron Pipe: AWWA C151, with push-on-joint bell and plain spigot end unless grooved or flanged ends are indicated.

1. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.

2. Gaskets: AWWA C111, rubber.

C. Flanges: ASME 16.1, Class 125, cast iron.

2.02 PVC PIPE AND FITTINGS

A. PVC, AWWA Pipe: AWWA C900 Class 200, with bell end with gasket, and with spigot end.

1. Comply with UL 1285 for fire-service mains if indicated.

2. PVC Fabricated Fittings: AWWA C900, Class 200, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.

3. PVC Molded Fittings: AWWA C907, Class 150, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.

4. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.

a. Gaskets: AWWA C111, rubber.

5. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.

a. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

2.03 JOINING MATERIALS

A. Brazing Filler Metals: AWS A5.8, BCuP Series.

B. Plastic Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.

2.04 PIPING SPECIALTIES

A. Transition Fittings: Manufactured fitting or coupling same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.

B. Tubular-Sleeve Pipe Couplings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Ford Meter Box Company, Inc. (The).

b. JCM Industries, Inc.

c. Smith-Blair, Inc.

d. Or Equal.

2. Description: Metal, bolted, sleeve-type, reducing or transition coupling, with center sleeve, gaskets, end rings, and bolt fasteners and with ends of same sizes as piping to be joined.

a. Standard: AWWA C219.

b. Center-Sleeve Material: Carbon steel.

c. Gasket Material: Natural or synthetic rubber.

d. Pressure Rating: 200 psig minimum.

e. Metal Component Finish: Corrosion-resistant coating or material.

C. Split-Sleeve Pipe Couplings:

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. Victaulic Company.

b. Or Equal.

2. Description: Metal, bolted, split-sleeve-type, reducing or transition coupling with sealing pad and closure plates, O-ring gaskets, and bolt fasteners.

a. Standard: AWWA C219.

b. Sleeve Material: Carbon steel.

c. Sleeve Dimensions: Of thickness and width required to provide pressure rating.

d. Gasket Material: O-rings made of EPDM rubber, unless otherwise indicated.

e. Pressure Rating: 200 psig minimum.

f. Metal Component Finish: Corrosion-resistant coating or material.

D. Flexible Connectors:

1. Nonferrous-Metal Piping: Bronze hose covered with bronze wire braid; with copper-tube, pressure-type, solder-joint ends or bronze flanged ends brazed to hose.

2. Ferrous-Metal Piping: Stainless-steel hose covered with stainless-steel wire braid; with ASME B1.20.1, threaded steel pipe nipples or ASME B16.5, steel pipe flanges welded to hose.

E. Dielectric Fittings:

1. General Requirements: Assembly of copper alloy and ferrous materials with separating nonconductive insulating material. Include end connections compatible with pipes to be joined.

2. Dielectric Unions:

a. Description:

1) Standard: ASSE 1079.

2) Pressure Rating: 250 psig.

3) End Connections: Solder-joint copper alloy and threaded ferrous.

3. Dielectric Flanges:

a. Description:

1) Standard: ASSE 1079.

2) Factory-fabricated, bolted, companion-flange assembly.

3) Pressure Rating: 150 psig or 300 psig.

4) End Connections: Solder-joint copper alloy and threaded ferrous; threaded solder-joint copper alloy and threaded ferrous.

4. Dielectric-Flange Insulating Kits:

a. Description:

1) Field-assembled companion-flange assembly, full face or ring type.

2) Non-conducting materials for field assembly of companion flanges.

3) Pressure Rating: 150 psig or 300 psig.

4) Gasket: Neoprene or phenolic.

5) Bolt Sleeves: Phenolic or polyethylene.

6) Washers: Phenolic with steel backing washers.

5. Dielectric Couplings:

a. Description:

1) Galvanized steel couplings with inert and noncorrosive thermoplastic lining, with threaded ends.

2) Pressure Rating: 300 psig.

6. Dielectric Nipples:

a. Description:

1) Standard: IAPMO PS 66.

2) Electroplated steel nipple complying with ASTM F 1545.

3) Pressure Rating: 300 psig at 225 deg F minimum.

4) End Connections: Male threaded or grooved.

5) Lining: Inert and noncorrosive, propylene.

2.05 CORROSION-PROTECTION PIPING ENCASEMENT

A. Encasement for Underground Metal Piping:

1. Standards: ASTM A 674 or AWWA C105.

2. Form: Sheet or tube.

3. Material: LLDPE film of 0.008-inch minimum thickness, or high-density, cross-laminated PE film of 0.004-inch minimum thickness.

2.06 GATE VALVES

A. Ball Valves

1. All ball valves ¾" to 2 1/2 " shall be full-port valves.

B. AWWA, Cast-Iron Gate Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. McWane, Inc.

b. Mueller Co.

c. NIBCO INC.

d. Or Equal.

2. OS&Y, Rising-Stem, Resilient-Seated Gate Valves:

a. Description: Cast- or ductile-iron body and bonnet, with bronze or gray- or ductile-iron gate, resilient seats, and bronze stem.

1) Standard: AWWA C509.

2) Minimum Pressure Rating: 200 psig.

3) End Connections: Flanged.

2.07 GATE VALVE ACCESSORIES AND SPECIALTIES

A. Tapping-Sleeve Assemblies:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. American Cast Iron Pipe Company.

b. East Jordan Iron Works, Inc.

c. Flowserve Corporation.

d. Or Equal.

2. Description: Sleeve and valve compatible with drilling machine.

a. Standard: MSS SP-60.

b. Tapping Sleeve: Cast- or ductile-iron or stainless-steel, two-piece bolted sleeve with flanged outlet for new branch connection. Include sleeve matching size and type of pipe material being tapped and with recessed flange for branch valve.

c. Valve: AWWA, cast-iron, nonrising-stem, resilient-seated gate valve with one raised face flange mating tapping-sleeve flange.

B. Valve Boxes: Comply with AWWA M44 for cast-iron valve boxes. Include top section, adjustable extension of length required for depth of burial of valve, plug with lettering "WATER," and bottom section with base that fits over valve and with a barrel approximately 5 inches in diameter.

1. Operating Wrenches: Steel, tee-handle with one pointed end, stem of length to operate deepest buried valve, and socket matching valve operating nut.

C. Indicator Posts: UL 789, FMG-approved, vertical-type, cast-iron body with operating wrench, extension rod, and adjustable cast-iron barrel of length required for depth of burial of valve.

2.08 CHECK VALVES

A. AWWA Check Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. American Cast Iron Pipe Company.

b. APCO Willamette Valve and Primer Corporation.

c. Crane; Crane Energy Flow Solutions.

d. Or Equal.

2. Description: Swing-check type with resilient seat. Include interior coating according to AWWA C550 and ends to match piping.

a. Standard: AWWA C508.

b. Pressure Rating: 175 psig.

2.09 PRESSURE-REDUCING VALVES

A. Water Regulators:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. Cash Acme.

   b. Conbraco Industries, Inc.

   c. Honeywell Water Controls.

   d. Or Equal.

2. Standard: ASSE 1003.

3. Pressure Rating: Initial pressure of 150 psig.

4. Size: As indicated in the drawings.

5. Design Flow Rate: As indicated in the drawings.

6. Design Inlet Pressure: To be determined by the utility company.

7. Design Outlet Pressure Setting: To be determined by the utility company.

8. Body: Bronze with chrome-plated finish for NPS 2 and smaller; cast iron **with** interior lining complying with AWWA C550 or that is FDA approved for NPS 2-1/2 and NPS 3.

9. Valves for Booster Heater Water Supply: Include integral bypass.

10. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and NPS 3.

2.10 BACKFLOW PREVENTERS

A. Reduced-Pressure-Principle Backflow Preventers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. Flowmatic Corporation.

   b. Watts; a Watts Water Technologies company.

   c. Zurn Industries, LLC.

   d. Or Equal.

2. Standard: ASSE 1013.

3. Operation: Continuous-pressure applications.

4. Pressure Loss: 12 psig maximum, through middle 1/3 of flow range.

5. Size: As indicated in the drawings.

6. Body: Bronze for NPS 2 and smaller; stainless steel for NPS 2-1/2 and larger.

7. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.

8. Configuration: Designed for flanged horizontal, straight through flow.

9. Accessories:

   a. Valves: Ball type with threaded ends on inlet and outlet of NPS 2 and smaller; OS&Y gate type with flanged ends on inlet and outlet of NPS 2-1/2 and larger.

   b. Air-Gap Fitting: ASME A112.1.2, matching backflow preventer connection.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 22 1313

FACILITY SANITARY SEWERS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Pipe and fittings.
2. Nonpressure and pressure couplings.
3. Expansion joints and deflection fittings.
4. Backwater valves.
5. Cleanouts.
6. Encasement for piping.
7. Manholes.
8. Concrete for ballast and pipe supports.

1.02 DEFINITIONS

A. FRP: Fiberglass-reinforced plastic.

1.03 ACTION SUBMITTALS

A. Product Data: For the following:

1. Expansion joints and deflection fittings.
2. Transition couplings.
3. Cleanouts.

B. Shop Drawings: For manholes. Include plans, elevations, sections, details, and frames and covers.

1.04 INFORMATIONAL SUBMITTALS

A. Profile Drawings: Show system piping in elevation. Draw profiles to horizontal scale of not less than 1 inch equals 50 feet and to vertical scale of not less than 1 inch equals 5 feet. Indicate manholes and piping. Show types, sizes, materials, and elevations of other utilities crossing system piping.

B. Product Certificates: For each type of cast-iron soil pipe and fitting, from manufacturer.

C. Field quality-control reports.

1.05 DELIVERY, STORAGE AND HANDLING

A. Do not store plastic manholes, pipe, and fittings in direct sunlight.

B. Protect pipe, pipe fittings, and seals from dirt and damage.

C. Handle manholes according to manufacturer's written rigging instructions.

1.06 PROJECT CONDITIONS

A. Interruption of Existing Sanitary Sewerage Service: Do not interrupt service to facilities occupied by County or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:

1. Notify County Construction Manager no fewer than seven days in advance of proposed interruption of service.

2. Do not proceed with interruption of service without County Construction Manager's written permission.

PART 2 - PRODUCTS

2.01 PVC PIPE AND FITTINGS

A. PVC Type PSM Sewer Piping:

1. Pipe: ASTM D 3034, SDR 35, PVC Type PSM sewer pipe with bell-and-spigot ends for gasketed joints.

2. Fittings: ASTM D 3034, PVC with bell ends.

3. Gaskets: ASTM F 477, elastomeric seals.

B. PVC Pressure Piping:

1. Pipe: AWWA C900, Class 150 and Class 200 PVC pipe with bell-and-spigot ends for gasketed joints.

2. Fittings: AWWA C900, Class 150 and Class 200 PVC pipe with bell ends.

3. Gaskets: ASTM F 477, elastomeric seals.

2.02 NONPRESSURE-TYPE TRANSITION COUPLINGS

A. Shielded, Flexible Couplings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cascade Waterworks Mfg. Co.

b. Dallas Specialty & Mfg. Co.

c. Mission Rubber Company, LLC; a division of MCP Industries.

d. Or Equal.

2. Description: ASTM C 1460, elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.

B. Ring-Type, Flexible Couplings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Fernco Inc.

b. Logan Clay Pipe.

c. Mission Rubber Company, LLC; a division of MCP Industries.

d. Or Equal.

2. Description: Elastomeric compression seal with dimensions to fit inside bell of larger pipe and for spigot of smaller pipe to fit inside ring.

2.03 PRESSURE-TYPE PIPE COUPLINGS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cascade Waterworks Mfg. Co.

2. Ford Meter Box Company, Inc. (The).

3. JCM Industries, Inc.

4. Or Equal.

B. Tubular-Sleeve Couplings: AWWA C219, with center sleeve, gaskets, end rings, and bolt fasteners.

C. Metal, bolted, sleeve-type, reducing or transition coupling, for joining underground pressure piping. Include 150-psig minimum pressure rating and ends of same sizes as piping to be joined.

D. Gasket Material: Natural or synthetic rubber.

E. Metal Component Finish: Corrosion-resistant coating or material.

2.04 CLEANOUTS

A. PVC Cleanouts:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. NDS Inc.

b. Sioux Chief Manufacturing Company, Inc.

c. Zurn Industries, LLC.

d. Or Equal.

2. Description: PVC body with PVC threaded plug. Include PVC sewer pipe fitting and riser to cleanout of same material as sewer piping.

2.05 ENCASEMENT FOR PIPING

A. Standard: ASTM A 674 or AWWA C105.

B. Material: High-density, cross-laminated polyethylene film of 0.004-inch minimum thickness.

C. Form: Tube.

D. Color: Natural.

2.06 MANHOLES

A. Standard Precast Concrete Manholes:

1. Manholes shall be according to City of Bakersfield standards.

B. Manhole Frames and Covers:

1. Manhole frames and covers shall be according to City of Bakersfield standards.

C. Manhole-Cover Inserts:

1. Manhole inserts shall be according to City of Bakersfield standards.

2.07 CONCRETE

A. Ballast and Pipe Supports: Portland cement design mix, 3000 psi minimum, with 0.58 maximum water/cementitious materials ratio.

1. Reinforcing Fabric: ASTM A 185/A 185M, steel, welded wire fabric, plain.

2. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (420 MPa) deformed steel.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 23 0500

HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The work covered by this subcontract includes the designated construction described herein including all labor necessary to install a complete and operational Variable Refrigerant Flow (VRF) with Dedicated Outdoor Air System (DOAS) HVAC system.

B. Variable Refrigerant Flow (VRF) System:

1. The Heating, Ventilation, and Air Conditioning (HVAC) system shall consist of multiple packaged rooftop heat pump DOAS units with energy recovery to deliver preconditioned ventilation air directly to each space. The DOAS units shall supply and exhaust air through single duct Variable Air Volume (VAV) terminal units prior to delivering and returning air to the spaces. Space heating and cooling shall be provided by VRF ducted fan coil units.

2. Systems designed must consider the impact of noise either equipment generated and/or regenerated sound in ducts and piping in all areas.

3. Medium pressure ductwork constructed to 4” wc pressure class shall be installed between DOAS and all VAV terminal units.

4. Low-pressure ductwork constructed to 2” pressure class shall be installed downstream of all VAV terminal units.

5. Supply diffusers, return grilles and exhaust grilles shall be ligature resistant type throughout the facility.

C. Provide roof mounted Restroom and Janitor Closet exhaust fans with ductwork and grilles. Locate exhaust fans 25 feet away from all roof top packaged air handling unit intakes.

D. Data/ MDF rooms cooled with a ductless split system air conditioning unit with a room temperature sensor.

E. Electrical rooms shall be cooled with ductless split system air conditioning unit with a room temperature sensor.

F. Sprinkler riser room shall be heated only.

G. The building control system shall be DDC system with the energy management system (EMS) and software allowing for remote access and control of HVAC system via internet connection.

H. Balancing:

1. Employ the services of an independent air and water-balancing firm to perform systems balancing and reporting.

2. Perform all balancing under the supervision of a registered Professional Engineer.

I. Commissioning:

1. Perform all system start up required to make the building systems fully functional. The Commissioning shall be performed by the Test and Balance Contractor.

1.02 DESIGN CRITERIA

A. Building heating loads shall include the envelope U-Values as specified by the Architect.

B. Building shall be designed with net positive pressure between 0.03" wc. And 0.05" wc.

C. Design shall be based on the following criteria unless noted otherwise:

DOAS Unit Supply Air Temperature	
Supply Air Temperature (Winter)	Supply Air Temperature (Summer)
68.0°F	73.0°F

Outdoor Ambient DesignTemperature	
Summer	Winter
103°F DB, 71°F WB	32°F DB

Indoor DesignTemperatures	
General	
Summer	Winter
75°F DB	70°F DB
Mechanical/ Sprinkler Room	
Summer	Winter
None	60°F DB
Electrical Rooms	
Summer	Winter
80°F DB	None

Interior Loads
Approved Software
TRACE 700

Minimum Ventilation Rates
Per Building Energy Efficiency Standards for Residential and Nonresidential Buildings – Title 24, (Edition in effect at Permit Submittal)

Noise Criteria Levels	
With All Systems In Normal Operation	
Type of Space	Maximum NC (DB re 10^{-12} watts)
Patient Rooms	30
Office Spaces	35
Conference Rooms	30
Great Rooms	35
Day Rooms	35
Dining Rooms	40
Corridors	35
Toilet Rooms	40
Storage	50

D. VAV system duct velocities shall not exceed the following:

1. Main Vertical Supply Air Duct: 1800 FPM @ 0.20” wc/100 ft (maximum).

2. Brach take-offs from supply main duct: 1500 FPM

3. Low pressure, downstream of VAV terminal unit: 800 FPM @ 0.08” wc/100ft (maximum)

4. Run-out to diffuser neck: 400 FPM

5. Return/ Exhaust Air: 800 FPM @ 0.06” wc/100ft

6. Outside Air: 800 FPM @ 0.06” wc/100ft

E. Electric Motors

1. Motors shall be high efficiency type per Building Energy Efficiency Standards for Residential and Nonresidential Buildings – Title 24, (Edition in effect at Permit Submittal).

1.03 SUBMITTAL REQUIREMENTS

A. Proposal Submittal: Provide in accordance with Mechanical General Provisions.

B. Coordination Submittal: Provide in accordance with Mechanical General Provisions and the following.

1. Calculation of volume and static pressure requirements for each fan.

2. Load calculations for all spaces.

3. Schedules for all equipment with the selected manufacturer indicated.

4. Sample temperature sensor and thermostat.

5. Sample grille and diffuser.

C. Construction Document Submittal: Provide in accordance with Mechanical General Provisions.

D. Final Submittal: Provide in accordance with Mechanical General Provisions.

PART 2 - PRODUCTS

2.01 MATERIAL REQUIREMENTS

A. Rooftop Packaged DOAS Units:

1. Provide a minimum of four rooftop packaged DOAS units to serve the ventilation air requirements for the building. Complete with supply and exhaust air fans, Variable Frequency Drives (VFD) or Electrocommunicative (EC) motors for supply and exhaust air fans, DDC temperature controls capable of interfacing with an energy management system, heat pump for heating and cooling designed for VAV applications, enthalpy wheel for energy recovery, dishcharge air temperature sensor, MERV-13 filter section on outside air inlet and MERV-8 filter section for return air, and low leakage outside air and exhaust air dampers. Provide power protection for phase failure/reversal, voltage imbalance, incorrect phase sequence, and low voltage.

2. Provide system start-up performed by factory certified/approved technical representatives.

3. Provide with spring isolation curb system for each roof top packaged air handling unit.

   a. Approved Manufacturers: Kinetics, Thybar, Canfab, or approved equivalent.

4. Approved Manufacturers: Aaon, Daikin, Valent, or prior approved equivalent.

B. Variable Refrigerant Units:

1. Units shall be specifically designed to work in conjunction with the manufacturer's proprietary control system, capable of controlling the system without input from the campus DDC. Control system shall integrate with building DDC via BACNET Gateway. Units shall be factory assembled, wired, and run tested. Indoor units, Outdoor units, and Branch Circuit Controllers in conjunction shall form a fully functional system.

2. Outdoor Units:

a. Provided with galvanized steel construction. One or multiple units can be piped together to form a single, large capacity unit. Provide necessary connection kits.

3. Indoor Units:

a. Provide medium and high static ducted fan coil units where shown on plans. Cabinets shall be space saving, low profile, ceiling concealed, and ducted. The indoor unit fan shall be an assembly of one or more fans driven by a single thermally protected motor. Coil shall be of non-ferrous construction with smooth plate fins on copper tubing. A condensate pan shall be provided under the coil.

b. Provide ceiling mounted cassettes where shown on plans. The indoor unit fan shall be an assembly of one driven by a single thermally protected motor. A grille shall be fixed to the bottom of the cabinet allowing one, two, three, or four-way direction airflow. Coil shall be of non-ferrous construction with smooth plate fins on copper tubing. A condensate pan shall be provided under the coil.

4. Branch Circuit Controllers or Branch Selector Boxes

a. Casing shall be constructed of galvanized steel. Unit shall contain necessary heat exchanger and solenoid valves required for the system. Branch Circuit Controllers shall contain a drip pan.

5. Approved Manufacturers: Mitsubishi, Daikin, LG.

C. Ductless Split System Air Conditioning Systems:

1. The indoor unit shall be factory assembled, wired and run tested. Contained within the unit shall be all factory wiring, piping, control circuit board and fan motor. The unit shall have a self-diagnostic function, 3-minute time delay mechanism, an auto restart function, an emergency operation function and a test run switch. Indoor unit and refrigerant pipes will be charged with dry air instead of R410a before shipment from the factory. The indoor unit shall be capable of low ambient operation.

2. The outdoor unit shall be designed specifically for use with the indoor units. These units are equipped with a circuit board that interfaces to the indoor unit and perform all functions necessary for operation. The unit must have a powder coated finish. The outdoor unit shall be completely factory assembled, piped and wired. Each unit must be run tested at the factory.

3. Approved Manufacturers: Mitsubishi, Diakin, or prior approved equivalent.

D. Fans:

1. Exhaust Fans:

a. Exhaust fans shall be centrifugal non-overloading direct-drive type, aluminum housing, back draft damper, and roof curb (if installed on the roof).

2. Approved Manufacturers: Cook, Greenheck, Twin City, or prior approved equivalent.

E. Single Duct VAV Terminal Units:

1. Provide VAV terminal units complete with pressure independent controls, velocity sensor, electric actuated air valve, DDC unit controls, insulated casing, and air flow switch.

2. Maximum published radiated sound power ratings (in DB re 10-12 watts per octave band center frequency, Hz) of VAV Terminal units:

Octave Band Center Frequency, Hz	125	250	500	1K	2K	4K
Radiated Sound Power Level, No Ceiling	56	48	48	47	51	48

3. Ratings of all VAV terminal units to be tested in accordance with latest revision of ARI Industry Standard 880.

4. Approved Manufacturers: Trane, Nailor, Titus, Price, Tuttle & Bailey, or approved equivalent.

F. DDC Temperature and Energy Management Controls:

1. Provide a Niagara BACnet Direct Digital Control (DDC) system for the building complete with, digital controllers, modem for interfacing the DDC system thru the internet, sensors, control panels, damper operators, actuators, and software for system control and trend logging. Provide all power wiring, plenum rated wiring, and wiring of control devices.

2. Contractor shall provide Owner with laptop computer and wireless printer. Laptop shall have an i7 core, 256 GB SSD hard drive, 17” LCD (1920x1080 resolution) monitor, 8 GB RAM, Gigabit Ethernet network card, and wireless mouse at a minimum.

3. System shall monitor roof top air conditioning units, ductless spilt system units, VAV terminal reheat units, all exhaust fans, domestic hot water heaters, domestic booster pump, and all other mechanical equipment with a motor.

4. Provide status monitoring, runtime totalization, and alarming of every motor in the building, including refrigeration compressor motors.

5. Provide start/stop control of every motor in the building, with auto-restart on power failure, usage scheduling, optimum starting, equipment failure, and override timers for off-hours usage.

6. Provide space temperature sensing at every VAV unit, outside air intake, mixed air plenum, and discharge air temperature monitoring of each heating or cooling device.

7. Provide temperature sensors with adjustable temperature settings.

8. Provide trending for any input or output point.

9. The system shall be expandable for tenant improvements and future additions to the building.

10. Upon completion of the calibration, startup of the system and perform all necessary testing and run diagnostic tests to ensure proper operation. The Controls contractor shall be responsible for generating all software and entering all database necessary to perform the sequence of control and specified software routines. Perform acceptance test in the presence of the Owner's designated representative and the Architect’s consultant.

11. The Controls contractor shall provide operator's manual describing all operating and routine maintenance service procedures to be used with the temperature control and Building Management System supplied. The Controls contractor shall instruct the Owner's designated representative in these procedures during the start-up and test period. The duration of the instruction period shall be no less than eight hours, during normal working hours.

12. Provide graphic window screen shots which include floor plans showing zones, zone boundaries and tabular summary screens for approval by Owner.

13. Coordinate on site location of the DDC workstation with Architect.

14. Approved Control Vendors: Paton Controls, or prior approved equivalent.

G. Ductwork:

1. Sheet metal supply, return, and exhaust ductwork shall conform to SMACNA fabrication and installation standards.

2. Fiberglass Duct Board is not allowed.

3. Insulate all supply, return, exhaust, and outside air ducts in accordance with the Building Energy Efficiency Standards for Residential and Nonresidential Buildings – Title 24, (Edition in effect at Permit Submittal)

4. Thoroughly clean all debris from the inside of all ductwork and plenums prior to placing equipment into operation.

H. Vibration and Noise Control:

1. Isolate all equipment with rotating components from the structure with spring and rubber isolators as recommended by ASHRAE. Flexible duct connectors between fan powered mechanical equipment and ducts is required.

2. Supply and return ductwork can utilize insulated flex duct for connection to diffusers and grilles for flexibility and noise control when concealed by ceilings – maximum 5' in length. Install flexible ductwork in accordance with SMACNA Standards. Flexible ducts shall not be used on the medium pressure duct connection to VAV terminal units.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Provide complete and operational systems with code-required access to each maintenance point. Installation of equipment to be in accordance with manufacturer's instructions. Access to all electrical control and power panels shall be in accordance with the National Electrical Code and City of Bakersfield requirements. Coordinate the locations and sizes of all the access panels with the Owner.

3.02 OWNER ACCEPTANCE REQUIREMENTS

A. Receipt of a satisfactorily completed Balancing Report.

B. Receipt of a satisfactorily completed Commissioning Report or that portion of the report covering the Heating, Ventilating, and Air Conditioning Systems.

END OF SECTION

SECTION 26 0000

ELECTRICAL GENERAL PROVISIONS

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The following is a summary of the Scope of Work, for the Electrical Design/Build Subcontractor, from here on in referred to as Subcontractor.

1. The base bid shall include complete shell and core Lighting, Electrical Service and Distribution, Fire Alarm, Convenience Receptacles, Grounding, Telephone Distribution, Security infrastructure and installation including, certified drawings, all systems, equipment, materials, etc. as required and as outlined in the design drawing and specifications.

    a. Provide cost for an Alternate Bid for a Distributed Antenna System (DAS) for first responders to ensure first responders will have radio communication throughout the building. Provide all amplifiers, antennas, cabling and other appurtenances for a complete and operational system.

    b. Alternate Bid: The contractor shall provide a one (1) year maintenance agreement in addition to the requirements described under the Base Bid scope. The maintenance agreement shall include servicing of all the electrical equipment in the facility three (3) times annually. The Alternate Bid shall include the maintenance checklists identifying the level of service that will be provided. The Alternate Bid shall also identify any exclusions.

2. The project is a new single-story building in Bakersfield CA with approximately 30,000 gross square feet of space designed by BCRA.

3. The electrical documents consist of these design/build requirements.

B. Subcontractor shall submit, pay for, and obtain the electrical permit, fire alarm permit, and any other required low voltage permits required for this project.

C. Bidders are strongly encouraged to recommend cost saving material, equipment, and/or design alternatives.

D. Rebates: The Subcontractor is responsible for preparing all paperwork for applicable utility rebates for equipment provided under this contract. Rebates shall be payable to the Owner.

E. The Subcontractor shall provide all labor, materials, equipment, tools, plant, and shall perform all work to furnish the complete design and construction for Lighting, Electrical Service and Distribution, Fire Alarm, Convenience Receptacles, Grounding, Telephone Distribution, Security systems as described herein. Complete systems shall be designed, constructed and coordinated to meet the intent of the architectural and structural design documents. Subcontractor shall install work within the initial space accommodations or make other provisions at no additional cost to the Owner or Contractor and maintain the initial architectural and structural integrity.

F. Subcontractor shall fully coordinate work with other contractors. Any cost of remedy for lack thereof shall be the responsibility of the Subcontractor.

G. Subcontractor shall complete work expeditiously and within requirements of published project schedule.

H. Subcontractor shall provide all items and work indicated herein as required for a complete and operational system. This includes all incidentals, equipment, appliances, services, scaffolding, supports, tools, supervision, labor, consumable items, fees, licenses, etc., necessary to provide complete systems. Start up, commission, and check out each item and system to provide fully operable systems. Certain terms such as "shall, provide, install, commissioning, startup" are not used in some parts of the Documents. This does not indicate that the items shall be less than completely installed or that systems shall be less than complete.

I. Subcontractor shall prepare and submit to the Contractor complete engineering plans, specifications, and calculations for the project. These documents shall be prepared, signed, and sealed by a Professional Engineer registered in the State of California regularly engaged in the design of similar facilities and systems. Engineering work shall be in accordance with all laws and regulations applying thereto.

J. Comply with all applicable governmental regulations. Comply with all Federal, State, City, and other applicable codes and ordinances. If any conflict arises between the Specifications or codes and ordinances, immediately notify the Contractor. Do not deviate from the Drawings and specifications nor install any work that may be in conflict with codes and ordinances until the conflict is resolved and the Architect reviews the solution.

K. Obtain and pay for all permits and pay all fees required by authorities having jurisdiction for work provided by Subcontractor, except for utility development charges. Pay all royalties or fees required in connection with the use of patented devices and systems.

L. Arrange for and schedule all tests required by Authorities Having Jurisdiction and public or private utilities.

M. The Subcontractor shall be responsible for attaining the system performance defined in this document.

N. The Architect shall act on the Owner's behalf as advisors on technical matters of interest to the Owner. Their involvement in this project shall, in no way, alleviate the statutory and professional requirements or obligations of the Subcontractor as the Professional Engineer of Record. The review of design, or installation shall, in no way, reduce or diminish the obligation, responsibility or liability of the Subcontractor or their professional consultants.

O. The Subcontractor shall be responsible for informing the Contractor of all concrete work required for installation of the electrical systems. This work shall include equipment bases and inertia blocks as well as concrete curbs around equipment room floor penetrations. The Contractor will provide the aforementioned concrete work utilizing information provided by the Subcontractor.

P. The electrical systems design and installation shall conform to the building architecture and structural systems. Subcontractor shall coordinate system design and construction documents with Architect, Contractor, Structural Engineer, Civil, Mechanical Engineer, and other subcontractors. Any proposed deviations from these documents, due to the design or installation of the electrical systems, shall be in the form of a written request to the Contractor. The Contractor will coordinate the request and review process and will issue a written acceptance or rejection. Do not proceed with any work that is contingent upon receiving such approval until written authorization to do so is obtained from the Contractor. All requests for deviations shall be fully documented with reasons for the requests, benefits obtained by the Owner, impact on other associated design or construction trades and estimated additive or deductive cost impact on all construction trades. The Owner retains the right to approve or reject any request.

1.02 DESIGN CRITERIA

A. The design criteria and performance requirements described in this document generally reflect the owner's development requirements. The ideas presented have been integrated with the building's architecture and structure to form a total design concept. The design/build proposals shall conform to these electrical criteria and the architectural and structural drawings. However, these documents are not intended to inhibit the participating teams from submitting alternate concepts or designs.

B. The Architect is responsible for the design process. All lines of communication shall be directed through the Contractor. All aspects of the electrical design, which affect structural or civil engineering systems shall be referred to the Contractor who, in turn, will process the information through the Architect and appropriate consultants.

C. The Architect and the Owner will have the final decision with respect to system concepts, visual coordination, and acceptance of proposed products.

D. The Subcontractor shall accept direction through the Contractor with respect to performance of their contractual obligations. Subcontractor shall have a designated project representative and a back-up representative, either or both of whom shall attend all meetings, whether regularly scheduled or not.

E. Subcontractor shall meet with members of local regulatory authorities, utility companies and municipal service boards to coordinate their requirements with the project design and installation.

F. Architect and Owner reserve the right to review and comment on the electrical design documents. Their reviews shall be in the form of comments which shall be considered either as interpretations of the original design/build proposal or clarification of the intent of the scope of work. Subcontractor shall respond to these review comments with written acceptance or rejection of each comment. The Owner or his technical representatives will not accept responsibility for the technical design of the project, which remains the responsibility of the Subcontractor. Electrical design documents shall be submitted to the Architect for inclusion in the progress print sets, permit set, and construction documents set. Architect shall approve and provide direction on sheet sizing and sheet numbering. All Plans to be in similar format to Architect drawings.

G. Comply with applicable provisions of following:

1. IBC International Building Code.

2. NEC National Electrical Code.

3. State of California Building Codes.

4. International Energy Code.

5. City of Bakersfield Requirements.

6. NFPA National Fire Protection Association.

7. DOH Department of Health – for applicable areas.

8. Joint Commission – for applicable areas.

9. IES Illuminating Engineering Society of North America.

10. California Title 24.

11. California Electrical Code (CEC).

H. Contractor shall follow the naming convention used by the Owner. Contractor shall submit all proposed naming convention to the Owner for written approval.

1.03 ALTERNATES

A. Voluntary alternates to the base proposal may be presented, at the design/build team's option. All such alternates shall include a description of the item, benefits obtained by the Owner and associated add or deduct cost. Creativity and ingenuity are encouraged in this regard; however, the impact imposed on the building's architecture and structure systems must be considered.

B. Any proposed alternates shall be submitted to supplement to the base proposal.

C. Request for bid alternates are listed in these documents.

1.04 GENERAL REQUIREMENTS

A. The Subcontractor or their professional consultants shall be required to carry, as Engineers of Record, professional liability insurance (errors and omissions), of sufficient policy value and acceptable deductible, to cover their acts as Engineer of Record for this project. The Subcontractor shall furnish evidence of professional liability insurance coverage to the owner for review and acceptance. Minimum policy coverage shall be $2,000,000.

B. Identify equipment with permanent nameplates that agree with subcontractor furnished as-built drawings.

C. Job Conditions:

1. Utility Connections: Arrange for, coordinate, and verify existing service locations and elevations.

2. Field Measurements: Establish lines and levels for each system and coordinate with other systems to prevent conflicts and maintain proper clearances and accessibility.

D. Fire stop and seal wall and floor penetrations and penetrations with materials that provide the same fire rating as the floor or wall. The fire stop materials shall be of the same type through the project.

E. The Subcontractor shall provide adequate means for and shall fully protect finished parts of the materials and equipment against damage from whatever cause during the progress of the work until final acceptance. Materials and equipment shall be covered in such a manner that no finished surfaces will be damaged or marred, and all moving parts shall be kept clean and dry.

F. At conclusion of each day's work, clean up and stockpile on site all rubbish, debris and trash accumulated during the day as a result of work of this Section. Sidewalks and street adjoining the property shall be kept broom clean and free of debris, rubbish, trash, and obstructions of any kind caused by work of this section which will affect the conditions of streets, walks, utilities and property.

G. Warranty:

1. Submit a single guarantee stating that all portions of the work are in accordance with Contract requirements. Guarantee all work against faulty and improper material and workmanship for a period of two (2) years from date of substantial completion. Within 24 hours after notification, correct any deficiencies that occur during the guarantee period at no additional cost to the Owner, all to the satisfaction of the Owner. Obtain similar guarantees from subcontractors, manufacturers, suppliers and sub trade-specialists.

1.05 SUBMITTAL REQUIREMENTS

A. The Architect shall be the sole judge of submittals completeness, incorporate all required information in to the submittal as directed. The Architect may retain BCE Engineers, Inc. to review any or all of these submittals.

B. The Subcontractor shall submit all calculations and shop drawings to the Contractor for review and comment. Shop drawings shall be reviewed and stamped by Engineer of Record prior to submittal. By virtue of reviewing and commenting on such calculations and shop drawings, the Owner's Representatives and Architect do not accept any responsibility for the accuracy or appropriateness of the calculations, since that responsibility rests solely with the Subcontractor.

C. Peer Review:

1. The contractor shall participate in a peer review conducted by the designated Owner's Representative to review the drawings, specifications, calculations, and equipment cut sheets for compliance with the contract documents. The peer review shall be conducted upon submission of the Permit level documents to the City. The contractor is responsible for notifying the Owner a minimum of two (2) weeks prior to the Permit submission to the City.

D. General, Record, and As-Built Drawings:

1. General:

a. All drawings, except record drawings, shall be prepared with AutoCAD 2018 or Revit 2020 or newer software.

b. Use the Architect's drawings as x-refed backgrounds or as models as linked backgrounds.

c. Drawings shall be on title blocks the same size as the Architectural drawings. Title blocks shall be in paper space and print at 1:1. Plans shall be located in windows to model space.

d. Each submittal of drawings shall be accompanied with a CD-ROM of all electronic files.

2. Record Drawings:

a. Maintain up-to-date record drawings of changes to Electrical and deviations from Electrical drawings, including locations, sizes, or arrangement. Drawings shall be full-size of the Construction Documents. All work shall be clearly and neatly marked in red pencil.

b. Locate concealed work accurately to scale and dimension from column lines, concealed piping and ductwork.

3. As-Built Drawings:

   a. Use Record Drawings to produce As-Built Drawings.

   b. Furnish owner with a set of reproducible drawings in AutoCAD 2018 or newer software or updating the REVIT model also provide documents in PDF Format. Provide a CD-ROM of all electronic files.

E. Proposal Submittal:

1. Include a price breakdown in accordance with the Invitation To Bid.

2. A written technical description of the proposed systems broken in the following categories:

   a. SERVICE AND DISTRIBUTION

   b. LIGHTING

   c. FIRE ALARM

   d. SWITCHES AND RECEPTACLES

   e. DISCONNECTS, MOTOR RATED SWITCHES

   f. PANELBOARDS AND SWITCHBOARDS

   g. CIRCUIT BREAKING

   h. TELEPHONE/DATA DISTRIBUTION

   i. SECURITY

3. Provide “cut sheets” for major equipment and materials. Manufacturers submitted shall become the approved manufacturer and shall be provided unless altered by Change Order. Information shall include standard product literature, project specific power requirements, dimensions and weights.

4. Designation of Professional Engineer.

5. Proof of professional liability insurance.

6. Alternatives proposed (if any).

7. Provide a separate copy of all the submittals to the Owner.

F. Construction Documents:

1. Construction documents shall consist of coordinated drawings and specifications signed and sealed by a Professional Engineer registered in the State of California ready for permit submission to the authorities having jurisdiction; containing, as a minimum, the following:

a. Lighting calculations for all rooms including but not limited to sleeping rooms, offices, storage, great room, corridors, IT, telecommunication room, lobbies, sprinkler room, and electrical rooms.

b. Equipment schedules defining performance characteristics of all items of equipment.

c. Riser diagrams for power, telephone and security systems showing all locations and areas served.

d. Power, Lighting and Systems plans, 1/8” scale. Systems distribution and equipment location shall be shown for each floor. Number drawings to easily correlate to architectural numbering system; coordinate with architectural drawing list. Plans shall show coordination with all other construction trades. Drawing size shall be the same as the architectural drawings.

e. Miscellaneous details and large-scale plans and sections necessary to show coordination in congested areas.

f. Site plans showing extent of contract, work and point of interface with site utilities work.

g. Complete specifications defining a scope of work, equipment items, materials, and means and methods of installation. All drawings and specifications shall be prepared in the format designated by the Contractor.

h. Documentation suitable for building department approval demonstrating compliance with the California Energy Code Title 24 will be prepared by an Energy Code Compliance Consultant. Obtain a copy of this document from the Architect.

i. Complete documentation for electrical compliance.

G. Coordination:

1. This performance specification indicates the conceptual arrangement of systems. Subcontractor is responsible to conform the work to the requirements shown on the architectural, mechanical and other trades' drawings. Investigate the architectural and finish conditions affecting the work and arrange the work accordingly. Provide such flanges, adapters, and accessories as may be required to meet such conditions. Carefully check space requirements with other trades to insure that all material can be installed in the spaces allotted thereto, including above the finished suspended ceilings.

2. Transmit to other trades, via the Contractor, all information required for work to be provided under this Section in ample time for installation.

3. Wherever work interconnects with work of other trades, coordinate with these trades to insure that all trades have the necessary information to properly install all connections and equipment.

4. Furnish and set all sleeves for penetration of conduits through structural masonry and concrete walls and floor and elsewhere as required for the proper protection of each conduit passing through building surfaces.

5. Provide required supports and hangers for major items of conduits, so that loading will not exceed allowable loadings of structure. Submit equipment weights and loadings, including method of attachment, to the Contractor for review.

6. Coordinate and schedule work with other trades and the construction sequence. Install and coordinate the Electrical work in cooperation with other trades installing interrelated work. Before installation, take proper provisions to avoid interferences in a manner reviewed by the Contractor. All changes required in the work of the Subcontractor, caused by their neglect to do so, shall be made by them at their own expense.

7. Required anchor bolts, sleeves, inserts and supports shall be furnished by the Subcontractor as necessary for equipment provided by Subcontractor. Such anchor bolts, sleeves, inserts and supports shall be installed, except as otherwise agreed to, by the trade furnishing and installing them. Location of anchor bolts, sleeves, inserts and supports shall be coordinated by the Subcontractor requiring them to insure that they are properly installed. Any expense resulting from the improper location of anchor bolts, sleeves, inserts and supports shall be paid for by the Subcontractor with the responsibility for directing their proper locations.

8. Adjust location of conduit, equipment, and lighting to accommodate the work and to prevent interferences, both anticipated and encountered.

9. Install all electrical work to permit removal (without damage to other parts) of compressors, filters, fan shafts and wheels, belt guards, sheaves and drives and all other parts requiring periodic replacement or maintenance. Provide manufacturer's recommended clearances around equipment for service and proper operation. All installations shall be coordinated with other trades to allow for reasonable and safe access for maintenance and inspection.

10. Provide access panels for equipment, as required for inspection of equipment and for proper maintenance. Coordinate the locations and sizes of all the access panels with the Owner.

H. Operation and Maintenance Manuals (O&M):

1. Provide three copies in three-ring binders.

2. Provide a table of contents, numbered tabs to match, with material divided by type.

3. Include manufacturer's general literature on all items of equipment. "White-out" or "Cross-out" all material not applicable to the equipment installed.

4. Include manufacturers' operating and maintenance instructions when different from general literature.

5. Include control Sequence of Operation, wiring, and control diagrams.

6. Provide a separate electronic copy to the Owner.

PART 2 - PRODUCTS

2.01 PRODUCT & MATERIAL REQUIREMENTS

A. If products and materials for specific items or systems are specified, use those specified as representative of quality desired. If products and materials are not specified, use first-class high quality products and materials subject to review and acceptance by the Architect and Owner.

B. All products and materials shall be new, clean, free of defects and free of damage and corrosion.

C. Ship and store all products and materials in a manner which will protect them from damage, weather and entry of debris. If items are damaged in the opinion of the Architect, Owner's Representatives, or Contractor do not install, but take immediate steps to obtain replacement or repair.

PART 3 - EXECUTION

3.01 INSTALLATION

A. The Subcontractor shall prepare shop drawing submittals in accordance with submittal schedule. These submittals shall be reviewed and stamped by the Engineer of Record. Shop drawings shall show compliance with the Construction documents, coordination with all construction disciplines, accuracy of technical and dimensional data, and of the proposed manufacturer.

B. Attend regularly scheduled construction coordination meetings and other meetings, as requested by Contractor. Members of the Subcontractor's staff, who have direct knowledge of the Electrical design, shall accompany their respective installation counterparts at these meetings.

C. The Engineer of Record shall perform periodic site observations, on an average of twice per month basis, and prepare a status of installation report including deficiencies with respect to the contract documents. These site observations shall be performed in the presence of the Architect and/or the Owner's representatives, at their discretion.

D. Provide a written description of all observed field coordination problems, along with proposed resolutions, to the Contractor for distribution.

E. The Architect and the Owner may perform additional periodic observations, which may generate deficiency comments. Respond to these published deficiency lists within a two-week period.

F. The Engineer of Record shall perform final punch list inspections and submit to the Contractor.

G. Perform all system tests required by regulatory or code agencies in the presence of the appropriate local authorities, the Contractor and the Owner. BCE Engineers, Inc. may be retained by the Owner to provide comments.

3.02 CLOSEOUT REQUIREMENTS

A. After completion of work and prior to final acceptance, thoroughly clean all parts of the work, remove all debris and surplus equipment and leave installation in perfect condition, ready for use.

1. Final Submittal.

2. Operation and Maintenance Manuals.

3. Record Drawings (As-Built).

4. Complete, “signed off,” Permits. Copies are acceptable.

5. Completed Warranty.

END OF SECTION

SECTION 26 2413

ELECTRICAL SYSTEMS-ELECTRICAL SERVICE AND DISTRIBUTION

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The work covered by this subcontract includes the designated construction described herein including all labor necessary to perform and complete such construction, all materials and equipment to be incorporated in such construction, and all services, facilities, tools, and equipment necessary used to perform and complete such construction.

B. Electrical Service and Distribution:

1. Provide a 208Y/120 volt, three-phase, four-wire secondary service from utility provided transformer to the main switchboard service shall be based on 30 watts per SF of connected load.

2. Provide 208Y/120 volt, three-phase, four-wire main switchboard with GFI protection as required by Code. Provide four spare 100-amp spaces with all required hardware for future switch installation.

3. The building will be split into two functions (adult and minor) and the building electrical systems will be separate except from the serving transformer.

4. Provide remote electric meters for each main distribution board (adult and minor) so electrical use can be tracked by facilities.

5. Provide convenience outlets in the public areas, in the electrical, mechanical and elevator equipment rooms, in the elevator shaft, in janitor closets, in storage rooms and on the roof. Weatherproof receptacles will be located outside the building near each door.

6. Power connections to miscellaneous equipment associated with the core and shell will be provided. Branch circuits for these outlets and connections will originate in the house panels.

7. Electrical service grounding will include a connection to the building cold water line; a connection to the foundation's reinforcing bars, a connection to the building steel structure, and a connection to ground rods.

8. Equipment ground conductors will be run in all conduits with each branch circuit and feeder.

9. Provide two emergency diesel powered generators (one for the adult area and one for the minor building area). The generators shall be provided with fuel tanks for 72 hours of use. Provide sound and weather enclosures for the generators to meet all codes and ordinances. Provide NEC 700 (Life Safety) and NEC 702 (Optional Stand-by) automatic transfer switches per building to meet code requirements.

1.02 DESIGN CRITERIA

A. NEC National Electrical Code.

B. DOH Department of Health.

C. Interior lighting at 2 volt-amperes PSF.

D. Receptacle and equipment loads for at 4-volt ampere PSF.

E. Mechanical equipment loads at 6 volt-amperes PSF.

F. Number of 120 volt branch circuits at 1 circuit per 1200 volt-amperes of load.

G. Provide Arc Flash Studies and labels along with panel labels for all required equipment.

H. Provide electrical coordination and short circuit studies for main and feeder overcurrent devices.

1.03 SUBMITTAL REQUIREMENTS

A. Coordination Submittal:

1. Drawings.

2. All drawings shall be prepared using AutoCAD/REVIT and use the Architect's drawings as x-refed backgrounds.

3. Floor Plans for all areas of the building (minimum of same scale as architectural drawings).

4. Large Scale plans in congested areas.

5. Sections as required for clarity.

6. Riser diagrams.

B. Permit Submittal.

C. Final Submittal:

1. As-Built drawings shall be provided at completion and shall consist of:

a. One set of red-line prints of the contract drawings.

b. One set of computer drawings in PDF format and AutoCAD/REVIT on a CD ROM.

2. All calculations and other submitted materials.

3. Copy of completed permit from the Authority Having Jurisdiction.

4. Project will be considered less than substantially complete without these submittals.

PART 2 - PRODUCTS

2.01 MATERIAL REQUIREMENTS

A. All materials must be of the quality herein specified. All materials shall be new, of the best quality and free from defects. They shall be designed to insure satisfactory operation and operational life in the environmental conditions which will prevail where they are being installed.

B. Each type of material shall be of the same make and quality. The materials furnished shall be standard products of the manufacturers regularly engaged in the production of such equipment and shall be the manufacturer's latest standard design.

C. All materials shall be UL or ETL listed for the purpose for which they are used.

D. Raceway: Galvanized rigid steel (GRS), electrical metallic tubing (EMT), or rigid nonmetallic (PVC) conduit may be used except where not allowed by code. No PVC conduit shall be ran above grade or less than 18" below grade. Seal all raceway penetrations at buildings and floor slabs; seal interior of raceways where they pass through roofs and/or exterior walls.

E. Wires and Cables: 600 volt, subject to code requirements. Minimum wire size is 12 AWG. All conductors shall be copper.

F. Junction Boxes: Non-metallic or constructed of zinc coated steel, minimum 4" size. Provide as required. Where used outside, shall be gasketed, and completely of corrosion resistant construction.

G. Switches and Receptacles: Switches shall be "specification grade," side wired, plastic handle, configuration to suit application, GFCI type as indicated; Hubbell or equal. Receptacles shall be hospital grade and tamper-resistant duplex type, NEMA 5-20R. Provide switched receptacles per California Title 24 requirements. Switches in sleeping rooms and patient accessible areas shall be anti-ligature.

H. Disconnects: Shall be fused type, heavy duty, single throw, lockable type, having door interlock (to prevent opening when energized), enclosure to suit environment. Fuses shall be Bussman low peak dual element type, to suit application, or approved equal. Provide spare set of fuses for each disconnect. Coordinate all fuse sizing with equipment supplier (2) to insure proper sizing.

I. Motor Rated Switches: Toggle switch type, rated for 1 HP, 115-230 and 277 volt, NEMA 1, with thermal overload, Allen Bradley series 600 or equal.

J. Panelboards: Rated at proper voltage and current for intended use. Panels shall be 3-phase, 4-wire, 100% neutral. Panelboards shall have a separate ground bus bonded to the frame. Coordinate with local Power Utility for minimum AIC rating on service entrance panels. 10,000 AIC shall be considered minimum. All panelboards shall be in a lockable enclosure to suit the environment. Provide 10 additional spare keys.

K. Circuit Breakers: Type to suit panels; with minimum AIC symmetrical interrupting capacity to match panel value. Mount breakers such that handles operate in a horizontal plane. Bolt in type only. Provide common trip on all multiple pole breakers. Provide minimum of (4) 1-pole 20amp spare breakers per panel. Provide nameplates constructed of plastic (black-on-white) laminated material engraves through black surface material to white sublayer for all panelboards, disconnects, starters, and switches.

L. Switchboard: Shall be freestanding, steel with steel angle or channel framework of adequate strength and rigidity necessary to resist all conditions of use to which it may be subjected and to support all equipment, devices and appurtenances contained therein. Front plates shall be installed in sections so that all parts of the board are front accessible without disturbing other parts. A removable lifting angle shall be provided at the top and bottom of each shipping section(s). Overall height of switchboards shall not exceed 90 inches (not including base channels). Length and depth shall not exceed dimensions as scaled or noted in contract documents. Shall be full-fault current rated, series rating of devices is not allowed. Switches and fuses or breakers as shown. Space for future switches or breakers as shown including complete bussing and required hardware for mounting devices. Provide service metering per local power utility company standards and Title 24 Section 8.2 Service Electrical Metering Requirements.

M. Transient Voltage Surge Suppression (TVSS) / Surge Protective Device (SPD): TVSS devices shall be tested per ANSI C62.41-41-1991 and C62.45 standards. Suppressors shall have a warranty of 10 years. Suppressors shall provide suppression elements between each phase conductor and neutral and between neutral and ground. Suppressors shall have a single impulse current rating of 50,000 amperes per phase.

N. Electrical Distribution Spares: The Main Service Entrance Switchboard and Branch Panelboards will be provided with 25% spare capacity and space capacity. Transient Voltage Surge Suppression (TVSS) / Surge Protective Device (SPD): TVSS devices shall be tested per ANSI C62.41-41-1991 and C62.45 standards. Suppressors shall have a warranty of 10 years. Suppressors shall provide suppression elements between each phase conductor and neutral and between neutral and ground. Suppressors shall have a single impulse current rating of 50,000 amperes per phase.

O. Automatic Transfer Switch (ATS): Shall have voltage, amperage and ampere withstand ratings as indicated on the drawings. Transfer switches used to transfer from normal to emergency power shall be approved for emergency service, full ampere rated (no derating) with make rating at 20 times and break rating at 6 times full load current rating. Provide 4 pole device for switching of neutral in addition to phase conductors when generator neutral is grounded at the generator, or as indicated on the plans. Transfer and retransfer to normal load shall be automatic. Automatic transfer switches shall be electrically operated, mechanically held and supplied with positive mechanical interlocking. The main contracts shall be equipped with a safe manual override capability, UL 1008 listed meeting tables 21.1, 23.1, 23.2.

P. Provide nameplates constructed of plastic (black-on-white) laminated material engraves through black surface material to white sublayer for all panelboards, disconnects, starters, and switches.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Provide complete and operational systems with code-required access to each maintenance point. Installation of equipment to be in accordance with manufacturer's instructions. Access to all electrical control and power panels shall be in accordance with the National Electrical Code and the City of Nampa requirements.

3.02 OWNER ACCEPTANCE REQUIREMENTS

A. Receipt of satisfactorily completed commissioning report or that portion of the report covering electrical.

END OF SECTION

SECTION 26 5000

ELECTRICAL LIGHTING

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The work covered by this subcontract includes the designated construction described herein including all labor necessary to perform and complete such construction, all materials and equipment to be incorporated in such construction, and all services, facilities, tools, and equipment necessary used to perform and complete such construction.

B. Electrical Lighting:

1. Lobbies: Provide decorative pendant fixtures in concurrence with architectural theme of the building.

2. Corridors: Provide 1X4 recessed LED anti-ligature fixtures.

3. Restrooms: Provide recessed LED anti-ligature fixtures.

4. Service Rooms: 4 ft, LED strip fixtures will be used in electrical rooms, mechanical rooms, telecommunications closets, janitors' closets and storage rooms.

5. Sleeping rooms: Provide recessed LED anti-ligature fixtures and wall mounted anti-ligature night lights.

6. Exterior: Provide recessed or surface mounted LED fixtures in concurrence with architectural theme of the building.

7. Great Room: Provide decorative pendant fixtures in concurrence with architectural theme of the building.

8. Provide anti-ligature exit signs and egress light fixtures where required by NFPA, DOH and local codes. Exit signs and egress light fixtures will be powered through the emergency generators life safety branch.

9. Occupancy sensors will be provided in all areas required by California Title 24.

10. Lobby and corridor lights will be circuited through a relay panel controlled in accordance with California Title 24 and owners' requirements.

11. Building Mounted lighting will be controlled by both a photocell and time clock.

12. Provide branch circuits for building mounted signage.

13. Provide branch circuits with photocell and time clock control for building sign.

14. Building demand load response lighting controls will be provided per California Title 24 and owners requirements.

15. Site driveway and parking lot lighting: Provide a combination of 15’ and 22’ high light poles with full cutoff and internal glare shields. Engineer of Record shall design site lighting to meet local AHJ’s lighting trespass requirements. Provide 36” tall light bollards for the main walkways.

16. Landscape Lighting: Provide adjustable LED low mounted spotlight fixtures to highlight water and landscape features. Landscape lights shall be secured and mount on concrete base.

17. Sign Lighting: Provide adjustable low profile linear led sign light fixture to each site monument signs. Monument sign lights shall be secured and mount on concrete base. Coordinate and provide additional building mounted fixtures for building mounted signs.

1.02 DESIGN CRITERIA

A. CEC California Electrical Code.

B. IES luminating Engineering Society of North America.

C. International Energy Code.

D. DOH Department of Health Guidelines.

E. California Title 24.

F. Local codes and ordinances.

1.03 SUBMITTAL REQUIREMENTS

A. Coordination Submittal:

1. Drawings.

2. All drawings shall be prepared using AutoCAD and use the Architect’s drawings as x-refed backgrounds.

3. Floor Plans for all areas of the building (minimum of same scale as architectural drawings).

4. Large Scale plans in congested areas.

5. Sections as required for clarity.

B. Permit Submittal.

C. Final Submittal:

1. As-Built drawings shall be provided at completion and shall consist of:

a. One set of red-line prints of the contract drawings.

b. One set of computer drawings in PDF format and AutoCAD/REVIT on a CD ROM.

c. All calculations and other submitted materials.

2. Copy of completed permit from the Authority Having Jurisdiction.

3. Project will be considered less than substantially complete without these submittals.

PART 2 - PRODUCTS

2.01 MATERIAL REQUIREMENTS

A. All materials must be of the quality herein specified. All materials shall be new, of the best quality and free from defects. They shall be designed to ensure satisfactory operation and operational life in the environmental conditions which will prevail where they are being installed.

B. Each type of material shall be of the same make and quality. The materials furnished shall be standard products of the manufacturers regularly engaged in the production of such equipment and shall be the manufacturer's latest standard design.

C. All materials shall be UL or ETL listed for the purpose for which they are used.

D. Interior Fixtures: Steel or aluminum with 300°F, baked enamel finish, brushed aluminum with baked acrylic clear lacquer finish, or stainless steel with a brushed finish. Coordinate color and finish prior to ordering.

E. Exterior Fixtures: Corrosion resisting metal, a (non-ferrous, stainless steel or special finish) and in all cases suitable for outdoor service without tarnishing or other damage due to exposure. Coordinate color and finish prior to ordering. Cadmium plate all metal parts concealed by canopies, including screws, plates and brackets. All exposed fasteners shall be tamperproof.

F. Light Transmitting components: Virgin acrylic plastic (0.125-inch thick overall minimum) or glass. Shall be contained in a steel frame hinged and which remains attached to the fixture when door is in open position.

G. Adapters, Plates, Brackets and Anchors: Provide where required by construction features of the building to suitably mount lighting fixture. All such appurtenances and mounting methods shall be prior to fabrication and installation.

H. Solid-State Lighting: Fixtures shall have a lumen maintenance life expectancy (L70) of > 50,000 hours, a CRI of > 82, and a CCT of 3500K. Each solid-state fixture model shall be tested in accordance with IES LM-79 & LM-80 requirements.

I. LED Drivers shall have a 5 -year warranty. **Neutral wire to be used in lighting circuits shall be #10 AWG CU.**

J. Exit Signs: Cutout stencils made of minimum #20-gauge sheet steel or sheet aluminum with red glass or plastic back of the cutout. Mount fronts either on concealed hinges or pull-out type with chain catch. Removable cutout arrows shall indicate direction of travel.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Provide complete and operational systems with code-required access to each maintenance point. Installation of equipment to be in accordance with manufacturer's instructions. Access to all electrical control and panels shall be in accordance with the National Electrical Code and the City of Nampa requirements.

B. Install lighting fixture diffusers only after construction work, painting and cleanup are completed. Prior to final acceptance, remove all reflectors and diffusers, wash, rinse and reinstall.

C. Recessed Troffer Type: For fixtures supported by the ceiling suspension system, provide integral tabs, which rotate into position after fixture is lifted into the ceiling cavity. Provide two safety chains secured to structural members above suspended ceiling. Circuit connection shall be through use of 60-inch flexible conduit from a rigidly supported junction box. For plaster or GWB ceilings, provide a plaster frame compatible with light fixture.

D. Recessed Downlight Type: Mount in frames suitable for the ceiling, with the recessed portion of the fixture securely supported from the ceiling framing. For fixtures supported by a ceiling suspension system, provide two safety chains secured to structural members above suspended ceiling.

E. Surface and Pendant Mounting Type: Where mounted on accessible ceilings, hang from structural members by means of hanger rods through ceiling or as approved. Where ceiling is of insufficient strength to support weight of lighting fixture, provide additional framing to support as required. Fixtures shall be supported from structure with seismic bracing independent of ceiling. For Pendant Mount Type: Provide a Unistrut channel for mounting fixtures entire fixture length unless light fixture is designed specifically for supporting itself. Provide 3/8-inch thread rod secured to structural members for support of Unistrut channel.

3.02 OWNER ACCEPTANCE REQUIREMENTS

A. Receipt of satisfactorily completed commissioning report or that portion of the report covering electrical.

END OF SECTION

SECTION 27 0000

**ELECTRICAL LOW VOLTAGE SYSTEMS,
SECURITY AND TELECOMMUNICATIONS**

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The work covered by this subcontract includes the designated construction described herein including all labor necessary to perform and complete such construction, all materials and equipment incorporated to be incorporated in such construction, and all services, facilities, tools, and equipment necessary used to perform and complete such construction.

B. Electrical Low Voltage Systems:

1. The Main telecommunications (MDF) will be located per architectural floor plans.

2. Provide ¾" fire rated plywood floor-to-ceiling backboards on three (3) walls of the MDF and on one (1) wall of the telephone/data rooms (IDF) on other floors.

3. Provide voice/data backbone from the MDF to the IDF closets. Both ends of the cables will be terminated on patch panels installed in racks per Owner's requirements and a 25' loop will be left at each location.

4. Voice/Data cabling shall be Category 6 rated. A standard outlet will consist of 4-port for offices and staff areas. All other workstations will be provided with 3-port.

5. Provide Voice/data cabling from the MDF to the life safety systems including the fire alarm panel as required by code.

6. Conduits and boxes (with pull strings) will be provided for the CCTV, Security and Access Control systems. The systems will be installed by the owners selected subcontractor. Device locations and conduit system layout will be coordinated with the Architect as well as the installation vendor prior to installation.

1.02 DESIGN CRITERIA

A. NFPA National Fire Protection Association

B. EIA/TIA Electronic Industries Alliance/Telecommunication Industry Association.

C. BICSI Building Industry Consulting Services International

D. DOH Department of Health.

E. NEC National Electrical Code

1.03 SUBMITTAL REQUIREMENTS

A. Coordination Submittal:

1. Drawings.

2. All drawings shall be prepared using AutoCAD/REVIT and use the Architect's drawings as x-refed backgrounds.

3. Floor Plans for all areas of the building (minimum of same scale as architectural drawings).

4. Large Scale plans in congested areas.

5. Sections as required for clarity.

6. Riser diagrams.

7. Battery Calculations.

B. Permit Submittal.

C. Final Submittal:

1. As-Built drawings shall be provided at completion and shall consist of:

2. One set of red-line prints of the contract drawings.

3. One set of computer drawings in PDF format and AutoCAD/REVIT on a CD ROM.

4. All calculations and other submitted materials.

5. Copy of completed permit from the Authority Having Jurisdiction.

6. Project will be considered less than substantially complete without these submittals.

PART 2 - PRODUCTS

2.01 MATERIAL REQUIREMENTS

A. All materials must be of the quality herein specified. All materials shall be new, of the best quality and free from defects. They shall be designed to ensure satisfactory operation and operational life in the environmental conditions which will prevail where they are being installed.

B. Each type of material shall be of the same make and quality. The materials furnished shall be standard products of the manufacturers regularly engaged in the production of such equipment and shall be the manufacturer's latest standard design.

C. All materials shall be UL or ETL listed for the purpose for which they are used.

D. Systems plywood back board(s) shall be used to mount enclosures of any kind, to any wall or surface. The systems plywood backboard shall be securely fastened to the walls to accommodate no less than ten times the total weight of the equipment to be mounted. The systems plywood backboard shall be a minimum of 3/4", APA exterior grade Douglas Fir A-C, and fire retardant with a flame spread rating not more than 25 when tested according to ASTM E-84. Provide the systems plywood backboard from the floor up to ceiling height (not exceeding 12'-0") on three walls of the MDF and one wall of the IDF. The entire backboard shall be painted with three (3) coats of fire-retardant paint (the color shall match the adjacent surface). Do not paint over area of plywood that displays plywood is certified.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Provide complete and operational systems with code-required access to each maintenance point. Installation of equipment to be in accordance with manufacturer's instructions. Access to all electrical control and panels shall be in accordance with the National Electrical Code and the City of Bakersfield requirements.

B. All horizontal cables shall be supported at a maximum of 4'-0" intervals. At no point shall cables rest on, be tied to or otherwise secured to electrical conduit, plumbing, ventilation ductwork, accessible ceiling and/or light fixture hangers, or any other equipment. Cable shall be secured to building supports or wire hangers (at the structures ceiling) specifically designed to support cables and/or to additional blocks or anchors specifically installed for this purpose.

C. All open cabling and/or conduit shall be installed parallel or perpendicular to the structure. Open cable installations shall use insulated mounting supports or rings approved for such use. Wiring shall be installed near or on structural members as to minimize risk of physical damage by other trades or maintenance personnel servicing the equipment.

D. Every attempt shall be made to avoid running telecommunications close to (less than 2'-0") and/or parallel to other communication cables in the building, all lighting, and conduits containing 120vac (or greater). This shall be to avoid interference with any other service or system, operation, or maintenance purposes such as access boxes, ventilation-mixing boxes, access hatches to air filters, switch or electrical outlets, electrical panels, fire alarm equipment, clock systems, and lighting fixtures. Avoid crossing areas horizontally just above or below any conduit and/or riser. Route cables in such a manner to allow other cables to enter the conduit and/or riser without difficulty at a later time by maintaining maximum distance from these openings. Maintain all recommended distances from other cables, as required by the manufacturer. Install cable to whichever of these two requirements are more stringent.

3.02 OWNER ACCEPTANCE REQUIREMENTS

A. Receipt of satisfactorily completed commissioning report or that portion of the report covering electrical.

END OF SECTION

SECTION 28 3100

FIRE ALARM SYSTEMS

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Under the Base Bid provide all material, labor, equipment, design, and services necessary to perform the installation of complete fire protection coverage throughout, in accordance with the required and advisory provisions of the latest edition of the California Fire Code – Title 24, Part 9 and N.F.P.A. #72 as accepted by the Authority having Jurisdiction and project specifications.

B. Provide all material, labor, equipment, design, and services necessary to perform the installation of a complete, fully operational, intelligent (analog) and addressable (digital), low voltage 24 Volts D.C., point identification, microprocessor-based Fire Alarm System.

C. The Fire Alarm System shall include, but not be limited to a control panel, remote annunciators, power supplies, peripherals, initiating devices, notification appliances, cabling, conduit, junction boxes, fittings, raceways, termination at field devices and panels, etc. required for a complete operating system.

D. The Contractor is to obtain a permit and final approval from the Authority Having Jurisdiction for the Fire Alarm System. All permits, fees for plan review, inspections, testing, etc. shall be included in the bid proposal.

1.02 DESIGN CRITERIA

A. Devices and equipment for Fire Alarm System service shall be U.L. listed or Factory Mutual Global approved for use in Fire Alarm Systems and of the manufacturer's current model.

B. The Fire Alarm Control Panel shall be listed under U.L. Category UOJZ as a single control unit, and shall be U.L. Listed for Power Limited Applications per Article 760 of N.F.P.A. #70 (National Electrical Code).

C. The Fire Alarm System shall be

1. Manufactured by an ISO 9001 certified company

2. Meet the requirements of BS EN9001: ANSI/ASQC Q9001-1994

3. Shall bear the marking for a U.L. Listed UOJZ control unit

D. The Fire Alarm Control Panel shall electrically supervise and monitor the integrity of all conductors of all circuits.

E. The Fire Alarm System Contractor shall provide a junction box at each side of a seismic separation or building expansion / separation joint. Provide a section of flexible conduit and grounding bushings with #12 grounding cable to maintain continuity between junction boxes. Provide conduit and grounding cable of sufficient length to accommodate for the calculated building movement.

F. All initiation and notification circuits shall be installed as Class A.

G. Multi-Criteria and combination initiation devices such as smoke detectors and carbon monoxide detectors are not acceptable, all initiation devices shall be 100% separate.

H. Provide battery back-up power for the entire Fire Alarm system to provide 24 hours of standby operation immediately followed by a minimum of 5 minutes of alarm operation.

I. Provide the Voltage Drop Calculations for each Fire Alarm System circuit. The maximum voltage drop on notification circuits shall be 4.4 Volts D.C.

J. The minimum spare capacities shall be provided for the following:

1. 25% for each Signaling Line Circuit (SLC)

2. 25% for each Initiating Device Circuit (IDC)

3. 25% for each Notification Appliance Circuit

4. 25% for each battery

5. 40% for conduit interior cross-sectional area (fill)

K. Automatic Smoke Detectors shall be provided at a minimum in the following locations:

1. In patient sleeping rooms.

2. A minimum of 1 smoke detector shall be installed at the nurse's station and centrally located.

3. In waiting areas and corridors onto which open in the same smoke compartment.

L. Manual Pull Stations shall be provided at a minimum in the following locations:

1. At the constantly attended nurse station (maximum travel distance of 200'-0").

2. At the Fire Alarm System Control Panel.

3. At the exterior man door located in the Administration area.

M. If AHJ requires Manual Pull Stations at exits located in patient area, the Manual Pull Stations shall be activated by use of a key by staff.

N. The Fire Alarm System shall release all electronically locked Patient Egress Doors upon activation of the Fire Protection Sprinkler System.

O. Audile Notification Appliances shall be provided at a minimum in the following locations:

1. In all nonpatient areas.

2. At the constantly attended nurse station where staff evacuation responsibilities are included in the evacuation plan.

3. In patient rooms where staff evacuation responsibilities are not included in the evacuation plan.

P. Audible Notification Appliances located in patient areas shall be only chimes or similar sounding appliances for alerting staff.

Q. Audible Notification Appliances not in-patient areas shall produce the three-pulse temporal pattern.

R. Audible Notification Appliances shall produce a minimum sound pressure of 15 decibels above the average ambient sound level or 3 decibels above the maximum sound level having a duration of not less than 60 seconds, whichever is greater.

S. The maximum sound pressure level for audible alarm notification appliances shall be 110 dBA at the maximum hearing distance from the audible appliance.

T. Visible Notification Appliances shall be provided at a minimum in the following locations:

1. In patient areas in lieu of Audible Notification Appliances.

2. At the constantly attended nurse station in lieu of Audible Notification Appliances in the patient rooms where staff evacuation responsibilities are included in the evacuation plan.

3. On corridor side of patient rooms where the patent room has a smoke detector.

4. Where the average ambient noise is greater than 95 decibels,

1.03 GENERAL

A. Drawings, General Conditions, and Supplementary Conditions of the Contract, including Division 0 and Division 1 Specification Sections apply to work of this Division.

B. Codes and agencies having jurisdictional authority over Fire Protection installations.

1. California Building Code (CBC) – Title 24, Part 2.

2. California Electrical Code (CEC) – Title 24, Part 3.

3. California Mechanical Code (CMC) – Title 24, Part 4.

4. California Plumbing Code (CPC) – Title 24, Part 5.

5. California Fire Code (CFC) – Title 24, Part 9.

6. California Green Building Standards Code – Title 24, Part 11.

7. Building Energy Efficiency Standards for Residential and Nonresidential Buildings – Title 24, Part 6.

8. City of Bakersfield.

9. Office of Statewide Health Planning and Development (OSHPD).

10. National Fire Protection Association (N.F.P.A.).

11. Underwriters Laboratories Incorporated (U.L.).

C. The Fire Alarm System Contractor shall be responsible for reviewing all architectural, civil, electrical, mechanical, plumbing, structural, fire protection, and fire alarm drawings.

D. Where Fire Alarm System conduit penetrates a fire resistance rated wall or floor assembly, the Fire Alarm System Contractor shall provide a fire rated penetration that maintains the integrity and fire resistance rating of the assembly being penetrated.

E. All items contained in Section 7.4 "Shop Drawings" of the latest edition of N.F.P.A. #72 adopted by the Authority Having Jurisdiction shall be included on the Fire Alarm System Shop Drawings.

1.04 SUBMITTALS

A. The Fire Alarm System Contractor shall submit shop drawings, back-up battery calculations, voltage drop calculations, graphic map(s), and manufacturer’s data sheets to the local Authority Having Jurisdiction and Architect/Engineer for review and shall be approved by all entities prior to the purchase, fabrication, or installation of any system component.

B. The Fire Alarm System submittals shall be a single complete package consisting of shop drawings, back-up battery calculations, voltage drop calculations, graphic map(s), and manufacturer’s data sheets. Partial submittal packages will not be allowed.

C. Close out submittals shall include the following at a minimum:

1. Completion of all punch list items
2. Operation instruction period to Owner's satisfaction
3. Permit Submittal
4. Operations and Maintenance Manuals
5. Training Manuals
6. Signed Warranty Letters
7. Completed and Signed Test Certificates
8. Off-Site Monitoring Services Agreement
9. As-Built Drawings on electronic media in AutoCAD 2019 format delivered to Architect
10. Program Software
11. Spare Parts

PART 2 - PRODUCTS

2.01 MATERIAL REQUIREMENTS

A. Devices, equipment, and piping for fire protection service shall be U.L. listed or Factory Mutual Global approved for use in sprinkler systems.

B. Fire Alarm System Control Panel:

1. The Fire Alarm System Control Panel shall meet the modular listing requirements of the ninth edition of UL Standard 864 "Standard for Control Units and Accessories for Fire Alarm Systems" for ease of installation, maintenance, and future expansion.
2. The Fire Alarm System Control Panel shall provide the following features at a minimum:
    a. Supervision of all initiating and notification circuits throughout the facility by way of connection to addressable control, monitor, and relay modules.
    b. Detect the activation of any initiating device and the location of the alarm condition.
    c. Operate all notification appliances and auxiliary devices as programmed.

3. The Fire Alarm System Control Panel shall include a full featured backlit 80-character Liquid Crystal Display (LCD) Display Interface Assembly.)

4. The Fire Alarm System Control Panel Enclosure and Terminal Cabinets shall be listed to UL #50 "Enclosures for Electrical Equipment, Non-Environmental Considerations", N.F.P.A. #72, and shall be approved for fire protection service.

C. Fire Alarm Remote Annunciator Panel(s):

1. The Fire Alarm Remote Annunciator Panel(s) shall be programmed to clearly indicate the exact same information that is displayed at the Fire Alarm Control Panel and shall be protected from unauthorized use by a keyed switch (similar to the main Fire Alarm Control Panel enclosure).

D. Remote Power Supplies:

1. Remote Power Supplies shall meet UL #864 "Standard for Control Units and Accessories for Fire Alarm Systems", N.F.P.A. requirements for power-limited operation, and shall be approved for fire protection service.

E. Batteries:

1. All batteries shall be placed inside a key lockable metal enclosure that is approved by the manufacturer.

2. Each battery shall have the date of installation written on the battery.

3. Batteries shall be completely sealed, maintenance free, leak proof, and usable in any position.

F. Battery Chargers:

1. Internal Battery Chargers shall be trickle or float charged and shall be capable of recharging batteries from a fully discharged condition to 100% within a 48-hour time period.

G. Manual Pull Stations:

1. Manual Pull Stations shall be listed to UL #38 "Standard for Manual Signaling Boxes for Fire Alarm Systems" and be compatible with the Fire Alarm System Control Panel.

2. Manual Pull Stations shall be double action type with a key operated test/reset lock.

3. Manual pull stations shall be constructed of metal, Lexan, or polycarbonate with clearly visible operating instructions and the word "FIRE" in white lettering provided on the cover.

H. Heat Detectors:

1. Heat Detectors shall be listed to UL #521 "Heat Detectors for Fire Protective Signaling Systems", UL #539 "Standard for Single and Multiple Station Heat Alarms", and FM #3210 "Heat Detectors for Automatic Fire Alarm Signaling".

2. Heat Detectors shall be 24 Volts D.C., Intelligent, Analog, and Addressable that shall connect to the Fire Alarm System Control Panel's supervised "Class A" Signaling Line Circuit (SLC).

3. Heat detectors shall be fixed temperature or rate of rise type.

I. Smoke Detectors:

1. Smoke Detectors shall be listed to UL #217 "Standard for Single and Multiple Station Smoke Alarms", UL #228 "Standard for Door Closers-Holders, With or Without Integral Smoke Detectors", UL #268 "Smoke Detectors for Fire Alarm Systems", and UL #1730 "Standard for Smoke Detector Monitors and Accessories for Individual living Units of multifamily Residences and Hotel/Motel Rooms".

2. Smoke Detectors shall be 24 Volts D.C., Intelligent, Analog, and Addressable that shall connect to the Fire Alarm / Emergency Communication System Control Panel's supervised "Class A" Signaling Line Circuit (SLC).

3. Smoke detectors shall be Photoelectric or Ionization principle type.

J. Duct Smoke Detectors:

1. Duct Smoke Detectors shall be listed to UL #268A "Standard for Smoke Detectors for Duct Application" and installed in accordance with manufacturer's recommendations.

2. Duct Smoke Detectors shall be Intelligent, Analog, Addressable, 24 Volts D.C. type that shall connect to the Fire Alarm System Control Panel's supervised "Class A" Signaling Line Circuit (SLC) loops for monitoring and control.

3. Duct Smoke Detectors shall be Photoelectric principle type.

4. Duct Smoke Detectors shall have an operating air velocity range of 100 feet per minute to 4,000 feet per minute

5. Duct Smoke Detectors shall have an operating water pressure differential of 0.0 to 1.2 inches of water.

K. Remote Test Stations:

1. Provide (1) one Remote Test Station for each duct smoke detector that is not installed in a visible or readily accessible location from the floor.

2. A Remote Test Station shall be operated by use of a key switch; the use of a magnet will not be allowed.

L. Carbon Monoxide Detectors:

1. Carbon Monoxide Only Detectors shall be listed to UL #2075 "Gas and Vapor Detectors and Sensors" and be compatible with the Fire Alarm / Emergency Communication System Control Panel.

2. Carbon Monoxide Only Detectors shall be 24 Volts D.C., Intelligent, Analog, and Addressable that shall connect to the Fire Alarm System Control Panel's supervised "Class A" Signaling Line Circuit (SLC).

M. Souder Bases:

1. Sounder Base Only Appliances shall be listed to UL #268 "Smoke Detectors for Fire Alarm Systems", UL #464 "Standard for Audible Signal Appliances", and be compatible with the Fire Alarm System Control Panel.

2. Low Frequency Sounder Base Only Appliances shall be listed to UL #268 "Smoke Detectors for Fire Alarm Systems", UL #464 "Standard for Audible Signal Appliances", UL #1971 “Standard for Signaling Devices for the Hearing Impaired", and be compatible with the Fire Alarm System Control Panel.

N. Strobe Only Appliances:

1. Strobe Only Appliances shall be listed to UL #1638 "Standard for Visual Signaling Appliances - Private Mode Emergency and General Utility Signaling", shall be approved for fire protective service, and be compatible with the Fire Alarm System Control Panel.

2. Strobe Only Appliances shall be Intelligent, Analog, and Addressable that shall connect to the Fire Alarm System Control Panel's supervised "Class A" Notification Appliance Circuits (NAC).

3. Strobe Only Appliances shall flash at a rate of one flash per second at 1Hz over the strobes entire operating voltage.

4. Strobe Only Appliances shall be xenon / zenon flash tube type.

5. Strobe Only Appliances shall have a minimum of 4 candela (Cd) selectable settings that are selectable at the appliance.

6. Strobe Only Appliances shall meet the minimum Candela (Cd) rating at the listed maximum room size indicated in Table 18.5.5.4.1(a) for wall mounted Strobe Only Appliances or Table 18.5.5.4.1(b) for ceiling mounted Strobe Only Appliances of N.F.P.A. #72.

O. Horn Only Appliances:

1. Horn Only Appliances shall be listed to UL #464 "Standard for Audible Signal Appliances", UL #1971 “Standard for Signaling Devices for the Hearing Impaired", shall be approved for fire protective service, and be compatible with the Fire Alarm System Control Panel.

2. Horn Only Appliances shall be Intelligent, Analog, and Addressable that shall connect to the Fire Alarm System Control Panel's supervised "Class A" Notification Appliance Circuits (NAC).

3. Horn Only Appliances shall have three (3) audibility options and an option to switch between a temporal three-pattern and a non-temporal (continuous) pattern.

4. Horn Only Appliances shall produce a nominal sound output of 82 dBA at 10'-0".

5. Horn Only Appliances shall produce a maximum sound output of 90 dBA at 10'-0"

P. Combination Horn/Strobe Appliances:

1. Combination Horn / Strobe Appliances shall be listed to UL #464 "Standard for Audible Signal Appliances", UL #1638 "Standard for Visual Signaling Appliances - Private Mode Emergency and General Utility Signaling", UL #1971 “Standard for Signaling Devices for the Hearing Impaired", shall be approved for fire protective service, and be compatible with the Fire Alarm System Control Panel.

2. Combination Horn / Strobe Appliances shall be Intelligent, Analog, and Addressable that shall connect to the Fire Alarm System Control Panel's supervised "Class A" Notification Appliance Circuits (NAC).

3. Strobes shall flash at a rate of one flash per second at 1Hz over the strobes entire operating voltage.

4. Strobes shall be xenon / zenon flash tube type.

5. Strobes shall have a minimum of 4 candela (Cd) selectable settings that are selectable at the appliance.

6. Strobes shall meet the minimum Candela (Cd) rating at the listed maximum room size indicated in Table 18.5.5.4.1(a) for wall mounted Strobe Only Appliances or Table 18.5.5.4.1(b) for ceiling mounted Strobe Only Appliances of N.F.P.A. #72.

7. Horns shall have three (3) audibility options and an option to switch between a temporal three-pattern and a non-temporal (continuous) pattern.

8. Horns shall produce a nominal sound output of 82 dBA at 10'-0".

9. Horns shall produce a maximum sound output of 90 dBA at 10'-0".

Q. Graphic Maps:

1. Provide a full color graphical representation of the floor plan(s) that shall be installed directly adjacent to each Fire Alarm Remote Annunciator Panel and by the Fire Alarm System Control Panel.

2. Graphic Maps shall be a minimum of 11"x17" in size, but shall be based upon the actual building footprint and all text being at a 1/8" scale.

3. Graphic Maps shall include the following information at a minimum:

a. Building Name (and numbers where applicable).

b. Room Names and Numbers that match the final signage and room identification system adopted by the Owner.

c. Doors.

d. Fire Alarm Remote Annunciator Panel Location.

e. Fire Alarm System Control Panel Location.

f. A “You Are Here” with an arrow pointing at the wall or area location of where Graphic Map is to be installed.

g. Initiation devices with addresses.

h. Fire Protection Sprinkler System Post Indicator Valve(s)

i. Fire Protection Sprinkler System Water Flow Switch(s)

j. Fire Protection Sprinkler System Tamper Switch(s)

k. Fire Protection Sprinkler System Pressure Switch(s)

l. Suppression System Release Panel(s)

m. Fire extinguisher cabinets

R. Monitor Modules:

1. Monitor Modules shall be listed to UL #864 "Standard for Control Units and Accessories for Fire Alarm Systems" and shall be approved for fire protection service.

2. Provide an addressable Monitor Module to supervise a circuit of dry contact input devices.

S. Relay Modules:

1. Relay Modules shall be listed to UL #864 "Standard for Control Units and Accessories for Fire Alarm Systems" and shall be approved for fire protection service.

2. Relay Modules shall allow a compatible Fire Alarm System Control Panel to switch discrete contacts by coded command.

T. Control Relays:

1. Control Modules shall be listed to UL #864 "Standard for Control Units and Accessories for Fire Alarm Systems" and shall be approved for fire protection service.

2. Control modules shall be used to switch 24 Volts D.C. audible/visual power.

3. Power for the Control Module shall be provided by the 24 Volts D.C. Signaling Line Circuit (SLC) loop.

U. Isolation Modules:

1. Isolation Modules shall be listed to UL #864 "Standard for Control Units and Accessories for Fire Alarm Systems" and shall be approved for fire protection service.

2. Isolation Modules shall be provided to automatically isolate wire-to-wire short circuits on Signaling Line Circuit (SLC) loops.

3. A maximum of 20 devices shall be provided between Isolation Modules on the Signaling Line Circuit (SLC) loop.

V. Magnetic Door Holders:

1. Magnetic Door Holders shall be listed to UL #228 "Standard for Door Closers-Holders, With or Without Integral Smoke Detectors" and shall be approved for fire protection service.

2. Magnetic Door Holders shall consist of both an electromagnet and an armature assembly.

3. Magnetic Door Holders shall be rated for continuous duty and operate using a 120 Volts A.C. power source.

4. Provide 24 Volts D.C. Relay module connected to the Fire Alarm System Control Panel to break the 120 Volts A.C. power source to the Magnetic Door Holders.

W. Magnetic Door Locks:

1. Magnetic Door Locks shall be listed to UL #228 "Standard for Door Closers-Holders, With or Without Integral Smoke Detectors" and shall be approved for fire protection service.

2. Magnetic Door Locks shall be rated for continuous duty and operate using a 120 Volts A.C. power source.

3. Provide 24 Volts D.C. Relay module connected to the Fire Alarm System Control Panel to break the 120 Volts A.C. power source to the Magnetic Door Locks.

X. Universal Digital Alarm Communicating Transmitters (UDACT):

1. The Universal Digital Alarm Communicating Transmitter (UDACT) shall be listed to UL #827 "Standard for Central Station Alarm Services", UL #1981 "Standard for Central Station Automatic Systems", and shall be approved for fire protection service.

2. The Universal Digital Alarm Communicating Transmitter (UDACT) is an interface for communicating digital information between a Fire Alarm System Control Panel and central station monitoring company.

Y. AES Wireless Transceiver:

1. AES Wireless Transceiver shall be listed to UL #365 " Standard for Police Station Connected Burglar Alarm Units and Systems", UL #864 "Commercial Fire Alarm Requirements for Primary Standalone Communication", UL #1681 "Standard for Wiring Device Configurations" and meet N.F.P.A. #72 requirements.

2. The AES Wireless Transceiver (AES 7788F-ULP) shall provide a wireless communication link between the Fire Alarm System Control Panel and the central station monitoring company receiver.

3. The AES Wireless Transceiver shall be provided within a full-sized rugged metal enclosure.

Z. Transient Voltage Surge Protection:

1. If not provided as an integral part of the Fire Alarm System power supply, an external means of Transient Voltage Surge Protection shall be provided for all powered components of the system.

2. The means of Transient Voltage Surge Protection shall be listed to UL #497A "Standard for Secondary Protectors for Communications Circuits", UL #1283 "Standard for Electromagnetic Interference Filters", UL #1449 "Standard for Surge Protective Devices", and shall be approved for fire protection service.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Installation, workmanship, fabrication, assembly, erection, examination, inspection, and testing shall be in accordance with N.F.P.A. #72.

B. The work performed under this specification shall be of good quality and performed in a workmanlike manner.

C. Class A Circuits shall not cause system malfunction, loss of operating power, or the ability to report an alarm upon a single ground fault or open circuit on the system.

D. Notification Appliance Circuit (NAC) speaker circuits shall be arranged such that there is a minimum of one speaker circuit per floor of the building or smoke zone whichever is greater,

E. All equipment attached to ceiling assemblies shall be firmly secured in place and shall not be supported solely by ceilings.

F. Fire Alarm System Control Panel, Terminal Cabinets, and Remote Annunciator Panels:

1. The top of the Fire Alarm System Control Panel, Terminal Cabinets, and Remote Annunciator Panels shall be located 60" above the finished floor and shall be installed level.

G. Manual Pull Stations:

1. The operable part of each manual pull station shall be mounted no lower than 42" or more than 48" above the finished floor.

2. Each manual pull station shall be located within 5'-0" of the latch side of each exterior opening man door.

H. Heat Detectors:

1. Ceiling mounted Heat Detectors shall not be installed closer than 4" of a wall.

2. Wall mounted Heat Detectors shall not be installed closer than 4" or more than 12" down from the ceiling to the top of the Detector.

3. Heat Detector locations under sloped ceilings / roofs shall be placed at or within 3'-0" (measured horizontally) of the high side of sloped ceilings / roofs.

I. Smoke Detectors:

1. Ceiling mounted Smoke Detectors shall not be installed closer than 4" of a wall.

2. Wall mounted Smoke Detectors shall not be installed closer than 4" or more than 12" down from the ceiling to the top of the Detector.

3. Smoke Detectors shall be located no closer than 3'-0" from a supply or exhaust H.V.A.C. grille.

4. Smoke Detectors shall be located no further than 5'-0" from the Fire Alarm System Control Panel.

J. Smoke Detectors for Magnetic Door Holders

1. Ceiling mounted smoke detectors shall be located in the following locations:

a. Placed along the centerline of the door opening in a perpendicular direction.

b. Placed no further than 5'-0" measured along the ceiling from the door in which it serves

2. Wall mounted smoke detectors shall be located above the door opening centerline

K. Duct Smoke Detectors

1. Duct smoke detectors shall be installed in the return side (not supply side) of H.V.A.C. units having a capacity greater than 2,000 c.f.m.

2. Duct smoke detectors shall be installed at a point downstream of the last tap location where 100% full air flow is present with properly sized air sampling tubes.

3. Sampling tunes in H.V.A.C. air ducts exceeding 36" in width shall penetrate the opposite side of the air duct from the side that the Duct Smoke Detector is installed.

L. Remote Test Stations:

1. Ceiling Mounted Remote Test Station with Light Emitting Diode (LED) shall not be installed.

2. Install Remote Test Station with Light Emitting Diode (LED) on the wall such that the key is located at an elevation of approximately 5'-0" above finished floor

3. Remote Test Stations for duct smoke detectors shall be installed within a 5'-0" radius of the duct smoke detector.

M. Carbon Monoxide Detectors:

1. Wall mounted Carbon Monoxide Detectors installed in indoor locations shall be at 80" above the finished floor or 6" below the ceiling, whichever is lower.

2. Carbon Monoxide Detectors shall be installed in any room that contains a fuel-burning appliance.

N. Strobe Only Appliances:

1. Ceiling Mounted Strobe Only Appliances shall be installed as recommended by the manufacturer.

2. Wall mounted Strobe Only Appliances installed in indoor locations shall be installed with the entire lens not less than 80" above the finished floor and not greater than 96" above the finished floor.

3. If there is an interruption of the concentrated viewing path, such as a fire door, an elevation change, or any other obstruction, the area shall be treated as a separate corridor.

O. Horn Only Appliances:

1. Ceiling Mounted Horn Only Appliances shall be installed as recommended by the manufacturer.

2. Wall mounted Horn Only Appliances installed in indoor locations with the top of the appliance not less than 90" above the finished floor or less than 6" below the ceiling, whichever is lower.

P. Graphic Maps

1. Provide a minimum of 6" of wall space between the Graphic Map and each Fire Alarm Remote Annunciator Panel and between the Graphic Map and the Fire Alarm System Control Panel.

2. Tops of the Graphic Maps shall be located 60" above the finished floor.

Q. AES Wireless Transceiver:

1. The AES Wireless Transceiver shall be flush mounted when located in finished areas and may be surface mounted when located in unfinished areas.

2. The top of The AES Wireless Transceiver shall be located 60" above the finished floor.

3. The maximum distance between the AES Wireless Transceiver and the Fire Alarm System Control Panel shall be 25'-0"

R. Antennas:

1. Antenna shall be installed above the roof line of the building in a location having an unobstructed path to the supervising station receiving equipment.

2. Standard coaxial cabling length shall not exceed 100'-0" and shall be cut to length with a maximum service loop of 1'-0" provided at the radio transmitter enclosure.

3. The coaxial cable shall be entirely installed in metallic conduit.

4. The coaxial cable shall be routed from the antenna to the lightning arrestor (static discharge unit) and from the lightning arrestor to the radio transmitter.

5. The connections at the antenna and lightning arrestor shall be provided with a sealant for weatherproofing.

S. Conduit:

1. All cabling shall be installed in conduit, exposed cabling is not allowed.

2. All conduit, junction boxes, conduit supports, and hangers shall be concealed in finished areas and may be exposed in unfinished areas.

3. All conduits shall be factory painted red.

T. Cabling:

1. Cabling for 24 Volts D.C. control, alarm notification, emergency communications, and similar power-limited auxiliary functions may be run in the same conduit as Initiating Device Circuits (IDC) and Signaling Line Circuits (SLC).

2. Cable must be separated from any open conductors of Power or Class 1 circuits and shall not be placed in any conduit, junction box, or raceway containing these conductors per Article 760 of N.F.P.A. #70.

3. All Fire Alarm System cabling must be new and free from insulation scrapes or peeling.

4. Cabling insulation shall be one of the types required by Article 725-16 of N.F.P.A. #70 and shall be consistently color coded throughout the system.

5. The Fire Alarm System Control Panel shall be connected to a separate dedicated branch circuit rated for a maximum of 20 amperes at 120 Volts A.C. This circuit shall be labeled at the main power distribution panel as "FIRE ALARM".

6. T-Tapping of Class "A" circuits is not allowed.

7. All cabling terminations shall be by use of screw type terminal blocks

8. The use of crimped connectors, wire nuts, twisting of wires, etc. shall not be allowed.

9. Class A cabling installed vertically in concealed locations shall be provided with a minimum separation distance of 1'-0".

10. Class A cabling installed horizontally in concealed locations shall be provided with a minimum separation distance of 4'-0".

11. All cabling penetrations into a Junction Box (J-Box), fitting, enclosure, panel, etc. shall be provided with a bushing to protect the cabling from abrasion in accordance with Paragraph 342.46 of N.F.P.A. #70. Hard rubber or compression bushings will not be approved and shall not be used.

12. Minimum cable sizes for 120 Volts A.C. circuits shall be a minimum of #12 AWG.

U. Junction Boxes (J-Box):

1. All Junction Boxes for the Fire Alarm System shall be painted red.

2. All Fire Alarm System Junction Boxes shall be annotated "Fire Alarm Power Limited" on the cover in black bold print having a minimum character font size of ¼" tall by ¼" wide.

3.02 AUDIBILITY TESTING REQUIREMENTS

A. The Fire Alarm System Contractor shall perform audibility testing in each space of the building as part of pre-testing and prior to Final Acceptance Testing.

B. Decibel readings shall be taken at a point 10'-0" away from the audible notification appliance at an elevation of 5'-0" above finished floor.

C. The sound level shall meet both of the following requirements:

1. A minimum of 15 decibels (dBs) above the average ambient sound level.

2. A minimum of 5 decibels (dBs) above the maximum sound level having a minimum duration of 60 seconds.

D. Decibel measurements shall be taken using the "A-weighted" measurements which are relatively flat from 600 Hz to 7,000 Hz.

E. Decibel measurements taken using the "B-weighted" (relatively flat from 300 Hz to 4,000 Hz) and "C-weighted" (relatively flat from 700 Hz to 4,000 Hz) are not acceptable.

3.03 ACCEPTANCE TESTING

A. Upon completion of the Division 28 work, the Fire Alarm System Contractor shall deliver to the Architect and/or Fire Protection Engineer a completion letter stating that all requirements of the Contract work have been completed and that the Fire Alarm System has been fully pre-tested and ready for Final Acceptance Testing

B. Submit copies of pre-test results to the Architect and/or Fire Protection Engineer for review and approval prior to submitting a request for Final Acceptance Testing with the Authority Having Jurisdiction.

C. The Fire Alarm System Contractor shall arrange for and obtain all required inspections and certificates pertaining to the Fire Alarm System work and deliver the certificates to the Architect and/or Fire Protection Engineer.

D. This system test shall be conducted by a factory trained technician.

E. The Fire Alarm System Contractor shall completely fill out all applicable documents contained in Section 7.8 "Forms" of N.F.P.A. #72.

F. After Final Acceptance Testing of the Fire Alarm System, the Fire Alarm System Contractor shall submit a copy of approved test certificates with Authority Having Jurisdiction signature.

3.04 INSTRUCTION AND TRAINING PERIOD

A. Upon completion of the work and after all tests and inspections by the Authority Having Jurisdiction, the Fire Alarm System Contractor shall provide a "Hands On" demonstration to train the Owner's designated operation and maintenance personnel.

B. The Fire Alarm System Contractor's representative shall be a superintendent, foreman, or technician who is knowledgeable in the system installed.

C. The Fire Alarm System Contractor shall arrange scheduled instruction periods with the Owner’s designated operation and maintenance personnel.

D. Training periods shall be based upon complexity of the system installed, but in no case be less than 4 hours in duration.

E. Upon request of the Owner, a "DVD" of the training period shall be made available by the Fire Alarm System Contractor at no additional cost to the Owner.

END OF SECTION

SECTION 31 1000

SITE CLEARING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.

2. Removing existing vegetation.

3. Clearing and grubbing.

4. Stripping and stockpiling topsoil.

5. Removing above- and below-grade site improvements.

6. Disconnecting, capping or sealing, and removing site utilities or abandoning site utilities in place.

7. Temporary erosion and sedimentation control.

1.02 DEFINITIONS

A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil," but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Topsoil: Top layer of the soil profile consisting of existing native surface and existing in-place surficial organic soil layer; the zone where plant roots grow.

D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.

E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.03 PRE-INSTALLATION MEETINGS

A. Pre-installation Conference: Conduct conference at Project site.

1.04 MATERIAL OWNERSHIP

A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain county's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.05 INFORMATIONAL SUBMITTALS

A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.

1. Use sufficiently detailed photographs or video recordings.

2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plant designated to remain.

B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.06 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from County and authorities having jurisdiction.

2. Provide alternate routes around closed or obstructed traffic ways if required by County or authorities having jurisdiction.

3. Maintain emergency vehicle access traffic ways at all times. If the Work impacts the emergency vehicle access traffic way, coordinate with the local Fire Marshal.

B. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining County’s property will be obtained by County before award of Contract.

1. Do not proceed with work on adjoining property until directed by County Construction Manager.

C. Salvageable Improvements: Carefully remove items indicated to be salvaged and store where indicated.

D. Utility Locator Service: Retain a professional utility locator service and have all existing underground utilities located and surface-identified before site clearing.

E. Do not commence site clearing operations until temporary erosion-control, sedimentation-control and plant-protection measures are in place.

F. Tree- and Plant-Protection Zones: The following practices are prohibited within plant protection zones:

1. Storage of construction materials, debris, or excavated material.

2. Parking vehicles or equipment.

3. Foot traffic.

4. Erection of sheds or structures.

5. Impoundment of water.

6. Excavation or other digging unless otherwise indicated.

7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

8. Do not direct vehicle or equipment exhaust toward protection zones.

9. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

G. Soil Stripping, Handling, and Stockpiling: Perform only when the soil is dry or slightly moist.

H. Burning: Burning is not permitted on the site.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 31 2000 "Earth Moving."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 31 2000

EARTH MOVING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Excavating and filling for rough grading the Site.

2. Preparing subgrades for slabs-on-grade, walks, pavements, turf and grasses, plants and synthetic turf surfacing.

3. Excavating and backfilling for buildings and structures.

4. Drainage course for concrete slabs-on-grade.

5. Subbase course for concrete walks pavements.

6. Subbase course and base course for asphalt paving.

7. Subsurface drainage backfill for walls and trenches.

8. Excavating and backfilling trenches for utilities and pits for buried utility structures.

B. Geotechnical Report: A geotechnical report in accordance with the requirements of the CBC has been completed and is available for review.

1. Geotechnical Report Publication Information:

a. Title: Geotechnical Engineering Investigation, Proposed Psychiatric Health Facility, Workman Street and Zephyr Lane, Bakersfield, Kern County, California

b. Date: June 10, 2020.

c. Author: Krazan & Associates, Inc.

d. Document / Project Number: 002-20048.

1.02 UNIT PRICES

A. Rock Measurement: Volume of rock actually removed, measured in original position, but not to exceed the following. Unit prices for rock excavation include replacement with approved materials.

1. 24 inches outside of concrete forms other than at footings.

2. 12 inches outside of concrete forms at footings.

3. 6 inches outside of minimum required dimensions of concrete cast against grade.

4. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.

5. 6 inches beneath bottom of concrete slabs-on-grade.

6. 6 inches beneath pipe in trenches, and the greater of 24 inches wider than pipe or 42 inches wide.

1.03 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.

2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course, or the subgrade if there is no subbase course, and hot-mix asphalt paving or concrete paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course (Capillary Break): Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Construction Manager. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.

3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Construction Manager,

shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material that exceed 1 cu. yd. for bulk excavation or 3/4 cu. yd. for footing, trench, and pit excavation that cannot be removed by rock-excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:

1. Equipment for Footing, Trench, and Pit Excavation: Late-model, track-mounted hydraulic excavator; equipped with a 42-inch-maximum-width, short-tip-radius rock bucket; rated at not less than 138-hp flywheel power with bucket-curling force of not less than 28,700 lbf and stick-crowd force of not less than 18,400 lbf with extra-long reach boom.

2. Equipment for Bulk Excavation: Late-model, track-mounted loader; rated at not less than 230-hp flywheel power and developing a minimum of 47,992-lbf breakout force with a general-purpose bare bucket.

I. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

J. Subbase Course: Aggregate layer placed between the subgrade and base course for asphalt or concrete pavement.

K. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase or base course if there is no subbase, drainage fill, drainage course, or topsoil materials.

L. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.04 PRE-INSTALLATION MEETINGS

A. Pre-installation Conference: Conduct pre-excavation conference at Project site.

1. Review methods and procedures related to earthmoving, including, but not limited to, the following:

a. Personnel and equipment needed to make progress and avoid delays.

b. Coordination of Work with utility locator service.

c. Coordination of Work and equipment movement with the locations of tree- and plant-protection zones.

d. Extent of trenching by hand or with air spade.

e. Field quality control.

1.05 ACTION SUBMITTALS

A. Product Data: For each type of the following manufactured products required:

1. Geotextiles.

2. Warning tapes.

B. Samples for Verification: For the following products, in sizes indicated below:

1. Geotextile: 12 by 12 inches.

2. Warning Tape: 12 inches long; of each color.

1.06 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:

1. Classification according to ASTM D 2487.

2. Laboratory compaction curve according to ASTM D 1557.

C. Pre-excavation Photographs or Video: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earth-moving operations. Submit before earth moving begins.

1.07 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: The County will retain a testing agency according to ASTM E 329 and ASTM D 3740 for testing indicated.

1.08 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from County and authorities having jurisdiction.

2. Provide alternate routes around closed or obstructed traffic ways if required by County or authorities having jurisdiction.

3. Maintain emergency vehicle access traffic ways at all times. If the Work impacts the emergency vehicle access traffic way, coordinate with the local Fire Marshal.

B. Improvements on Adjoining Property: Authority for performing earth moving indicated on property adjoining County's property will be obtained by the County before award of Contract.

1. Do not proceed with work on adjoining property until directed by the Construction Manager.

C. Utility Locator Service: Retain a professional utility locator service and have all existing underground utilities located and surface-identified before beginning earth-moving operations.

D. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures specified in Section 01 5000 "Temporary Facilities and Controls", Section 31 1000 "Site Clearing" and Section 01 5700 “Temporary Storm Water Pollution Control” are in place.

E. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.

2. Parking vehicles or equipment.

3. Foot traffic.

4. Erection of sheds or structures.

5. Impoundment of water.

6. Excavation or other digging unless otherwise indicated.

7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

F. Do not direct vehicle or equipment exhaust towards protection zones.

G. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

H. Existing Utilities: Do not interrupt utilities serving facilities occupied by County or others unless permitted in writing by County and then only after arranging to provide temporary utility services according to requirements indicated.

1. Notify County not less than five days in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without County's written permission.

I. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487, free of rock or gravel larger than 4 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

1. Expansion Index: Not more than 50 as measured by ASTM D 4829.

2. Upper 18 inches of subgrade fill under landscaped areas: Soil containing not more than 10% stones or lumps larger than 1-1/2 inches.

C. Unsatisfactory Soils: Soil Classification Groups OL, CH, MH, OH, and PT according to ASTM D 2487; Soil Classification Groups GC, SC, CL and ML where those soils are classified as medium or highly expansive by ASTM D 4829.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Backfill and Fill: Satisfactory soil materials.

E. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

F. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 294/D 2940M; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.

G. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

H. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

I. Drainage Course (Capillary Break): Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and zero to 5 percent passing a No. 8 sieve.

J. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and zero to 5 percent passing a No. 4 sieve.

K. Sand: ASTM C 33/C 33M; fine aggregate.

L. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

2.02 GEOTEXTILES

A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: As follows:

a. Grab Tensile Strength: 157 lbf; ASTM D 4632.

b. Sewn Seam Strength: 142 lbf; ASTM D 4632.

c. Tear Strength: 56 lbf; ASTM D 4533.

d. Puncture Strength: 65 lbf; ASTM D 4833.

2. Apparent Opening Size: No. 70 sieve, maximum; ASTM D 4751.

3. Permittivity: 1.8 per second, minimum; ASTM D 4491.

4. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

B. Separation Geotextile: Woven geotextile fabric, manufactured for separation applications, made from polyolefins or polyesters; with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: As follows:

a. Grab Tensile Strength: 247 lbf; ASTM D 4632.

b. Sewn Seam Strength: 222 lbf; ASTM D 4632.

c. Tear Strength: 90 lbf; ASTM D 4533.

d. Puncture Strength: 90 lbf; ASTM D 4833.

2. Apparent Opening Size: No. 60 sieve, maximum; ASTM D 4751.

3. Permittivity: 0.02 per second, minimum; ASTM D 4491.

4. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

2.03 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:

1. Red: Electric.

2. Yellow: Gas, oil, steam, and dangerous materials.

3. Orange: Telephone and other communications.

4. Blue: Water systems.

5. Green: Sewer systems.

B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:

1. Red: Electric.

2. Yellow: Gas, oil, steam, and dangerous materials.

3. Orange: Telephone and other communications.

4. Blue: Water systems.

5. Green: Sewer systems.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 32 1123

UNDERSLAB CAPILLARY BREAK

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Underslab Capillary Break under Concrete Slabs on Grade.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Capillary Break Material: Clean washed crushed rock conforming to the following gradation (percentages are by weight):

100% passing the 3/4” screen

96% maximum passing the 5/8” screen

66% maximum passing the 1/2” screen

27% maximum passing the 3/8” screen

6% maximum passing the 1/4" screen

4% maximum passing the #4 screen

1% maximum passing the #200 screen

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 32 1216

ASPHALT PAVING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Cold milling of existing asphalt pavement.
2. Hot-mix asphalt patching.
3. Hot-mix asphalt paving.
4. Hot-mix asphalt overlay.
5. Asphalt curbs.
6. Asphalt traffic-calming devices.
7. Asphalt surface treatments.
    a. Seal Coats.
    b. Crack Sealants.

1.02 SYSTEM DESCRIPTION

A. Provide hot-mix asphalt pavement according to the materials, workmanship, and other applicable requirements of the standard specifications of the State.

1. Standard Specification: CalTrans.
2. Manual of Tests: CalTrans.
3. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

1.03 PRE-INSTALLATION MEETINGS

A. Pre-installation Conference: Conduct conference at Project site.

1. Review methods and procedures related to hot-mix asphalt paving including, but not limited to, the following:
    a. Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.

b. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.

1.04 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include technical data and tested physical and performance properties.

2. Job-Mix Designs: For each job mix proposed for the Work.

B. Samples for Verification: For the following product, in manufacturer's standard sizes unless otherwise indicated:

1. Paving Fabric: 12 by 12 inches minimum.

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data: For each manufacturer.

B. Material Certificates: For each paving material. Submit certificate for each paving material, signed by manufacturer certifying that each material complies with requirements. Include statement that mixes containing recycled materials will perform equal to mixes produced from all new materials.

C. Material Test Reports: For each paving material, by a qualified testing agency.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: A paving-mix manufacturer registered with and approved by the California Department of Transportation (CalTrans).

B. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of the California Department of Transportation (CalTrans) for asphalt paving work.

1. Comply with requirements of local jurisdictions where more stringent than CalTrans requirements.

2. Measurement and payment provisions and safety program submittals included in CalTrans standard specifications do not apply to this Section.

3. Comply with the applicable standards of the Kern County Air Pollution Control District for quantities of volatile organic compounds (VOC’s) used in all materials.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.

B. Store pavement-marking materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

1.08 FIELD CONDITIONS

A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:

1. Tack Coat: Minimum surface temperature of 60 deg F.

2. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.

3. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.

4. Seal coat: At time of placement, minimum ambient temperature 55 deg F, minimum surface temperature 60 deg F.

PART 2 - PRODUCTS

2.01 AGGREGATES

A. General: Use materials and gradations that have performed satisfactorily in previous installations.

B. Base Coarse Aggregate: Class 2 Aggregate Base mineral aggregate, 3/4 inch maximum size, as specified in CalTrans Standard Specifications.

C. Asphalt Aggregate: Type B Aggregate, as specified in CalTrans Standard Specifications.

1. 3/4 inch maximum size for base course.

2. 1/2 inch maximum size for surface course.

3. 1/4 inch maximum size for surface course for playgrounds, pedestrian, and similar areas.

2.02 ASPHALT MATERIALS

A. Asphalt Binder: Steam Refined, material. PG 64-10 conforming to CalTrans Standard Specifications.

B. Tack Coat: ASTM D 977 emulsified asphalt, or ASTM D 2397 cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application.

C. Seal Coat: Emulsified asphalt with a minimum 2 percent to 3 percent latex or copolymer added with 2 to 4 lbs of grade #30 silica sand added per gallon and mechanically agitated.

D. Water: Potable.

2.03 AUXILIARY MATERIALS

A. Recycled Materials for Hot-Mix Asphalt Mixes: Reclaimed asphalt pavement from sources and gradations that have performed satisfactorily in previous installations, equal to performance of required hot-mix asphalt paving produced from all new materials.

B. Herbicide: Commercial chemical for weed control, registered by the Environmental Protection Agency (EPA), and not classified as "restricted use" for locations and conditions of application. Provide in granular, liquid, or wettable powder form.

C. Sand: ASTM D 1073 or AASHTO M 29, Grade No. 2 or No. 3.

D. Crack Sealer: Rubberized joint sealant complying with Federal Standards ASTM D 5329 Parking Lot Crack Sealer.

2.04 MIXES

A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes; designed according to procedures in AI MS-2, "Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types"; and complying with the following requirements:

1. Comply with CalTrans Standard Specifications.

2. Provide mixes with a history of satisfactory performance in geographical area where Project is located.

B. Base Course: Comply with CalTrans Standard Specifications.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 32 1313

CONCRETE PAVING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes Concrete Paving including the following:

1. Curbs and gutters.

2. Walks.

1.02 DEFINITIONS

A. Retain terms that remain after this Section has been edited for a project.

B. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash, slag cement, and other pozzolans.

C. W/C Ratio: The ratio by weight of water to cementitious materials.

1.03 PRE-INSTALLATION MEETINGS

A. Retain "Pre-installation Conference" Paragraph below if Work of this Section is extensive or complex enough to justify a pre-installation conference.

B. Pre-installation Conference: Conduct conference at Project site.

1. Review methods and procedures related to concrete paving, including but not limited to, the following:

a. Concrete mixture design.

b. Quality control of concrete materials and concrete paving construction practices.

2. Require representatives of each entity directly concerned with concrete paving to attend, including the following:

a. Contractor's superintendent.

b. Independent testing agency responsible for concrete design mixtures.

c. Ready-mix concrete manufacturer.

d. Concrete paving Subcontractor.

1.04 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples for Initial Selection: For each type of product, ingredient, or admixture requiring color selection.

C. Delete "Samples for Initial Selection" Paragraph above if colors and other characteristics are preselected and specified or scheduled. Retain "Samples for Verification" Paragraph below with or without above.

D. Samples for Verification: For each type of product or exposed finish, prepared as Samples of size indicated below:

1. Colored Concrete: 3” x 3” samples. Provide two samples of each color.

E. Design Mixes: For each concrete paving mix. Include alternate design mixes when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1. Mix designs are subject to approval of the county’s testing laboratory of record for compliance with requirements.

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Material Certificates: For the following, from manufacturer:

1. Cementitious materials.

2. Steel reinforcement and reinforcement accessories.

3. Fiber reinforcement.

4. Admixtures.

5. Curing compounds.

6. Applied finish materials.

7. Bonding agent or epoxy adhesive.

8. Joint fillers.

1.06 QUALITY ASSURANCE

A. Codes and Standards: Comply with local governing regulations if more stringent than herein specified.

B. Comply with applicable provisions of the following, except as otherwise indicated:

1. Applicable portions of the CBC.

2. The U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities.

3. Conform to applicable City codes for paving work on public property.

C. Continuous surfaces, including walks and sidewalks, shall have a continuous common surface, not interrupted by abrupt changes in level exceeding 1/□ inch

D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant and each aggregate from one source.

E. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by the requirements of the Contract Documents.

F. Concrete Testing Service: Engage a qualified independent testing agency to design concrete mixes.

1. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

2. Qualification requirements are in addition to those specified in Section 01 4002 “Quality Requirements / Contractor Laboratory.”

G. Mockups: Cast mockups of full-size sections of concrete pavement to demonstrate typical joints, surface finish, texture, color, and standard of workmanship.

1. Build mockup panels not less than 4’ x 4’ for each different integrally colored concrete paving and finish. Locate on site as directed by Construction Manager.

2. Notify Construction Manager seven days in advance of dates and times when mockups will be constructed.

3. Obtain Construction Manger's approval of mockups before starting construction.

4. Maintain approved mockups during construction in an undisturbed condition as a standard for judging the completed pavement.

5. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Construction Manager specifically approves such deviations in writing.

6. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

7. Demolish and remove non-approved mockups from the site.

1.07 FIELD CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

B. Hot-Weather Concrete Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

2. Cover steel reinforcement with water-soaked burlap, so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.

3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

PART 2 - PRODUCTS

2.01 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 unless otherwise indicated.

2.02 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.

1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.03 STEEL REINFORCEMENT

A. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, fabricated from as-drawn steel wire into flat sheets.

B. Epoxy-Coated Welded-Wire Reinforcement: ASTM A 884/A 884M, Class A, plain steel.

C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

D. Galvanized Reinforcing Bars: ASTM A 767/A 767M, Class II zinc coated, hot-dip galvanized after fabrication and bending; with ASTM A 615/A 615M, Grade 60 deformed bars.

E. Epoxy-Coated Reinforcing Bars: ASTM A 775/A 775M or ASTM A 934/A 934M; with ASTM A 615/A 615M, Grade 60 deformed bars.

F. Steel Bar Mats: ASTM A 184/A 184M; with ASTM A 615/A 615M, Grade 60 deformed bars; assembled with clips.

G. Plain-Steel Wire: ASTM A 1064/A 1064M, as drawn.

H. Deformed-Steel Wire: ASTM A 1064/A 1064M.

I. Epoxy-Coated-Steel Wire: ASTM A 884/A 884M, Class A; coated, plain.

J. Epoxy-Coated, Joint Dowel Bars: ASTM A 775/A 775M; with ASTM A 615/A 615M, Grade 60 plain-steel bars.

K. Tie Bars: ASTM A 615/A 615M, Grade 60; deformed.

L. Hook Bolts: ASTM A 307, Grade A, internally and externally threaded. Design hook-bolt joint assembly to hold coupling against paving form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.

M. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded-wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, precast concrete, or fiber-reinforced concrete of greater compressive strength than concrete specified, and as follows:

1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.

2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.

N. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement.

O. Zinc Repair Material: ASTM A 780/A 780M.

2.04 CONCRETE MATERIALS

A. Cementitious Materials: Use the following cementitious materials, of same type, brand, and source throughout Project:

1. Portland Cement: ASTM C 150/C 150M, **white** Portland cement **Type II** , low alkali.

2. Fly Ash: ASTM C 618, Class N or Class F.

B. Aggregate: ASTM C 33/C 33M, uniformly graded, from a single source.

1. Fine Aggregate: Minimum sand equivalent (ASTM D 2419) is 80.

2. Coarse Aggregate: Minimum cleanness value (CalTrans Test cv 227) is 80.

C. Water: Potable and complying with ASTM C 94/C 94M.

2.05 ADMIXTURES

A. Air-Entraining Admixture: ASTM C 260/C 260M.

B. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

C. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.

D. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

E. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.

F. Water-Reducing and Accelerating Admixture: ASTM C 494/C 494M, Type E.

G. Color Pigment: ASTM C 979/C 979M, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, nonfading, and resistant to lime and other alkalis.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Davis Colors.

b. Scofield, L. M. Company.

c. SureCrete Design Products.

d. Or equal.

2. Color: As selected by Architect from manufacturer's full range.

2.06 FIBER REINFORCEMENT

A. Synthetic Fiber: Fibrillated or monofilament polypropylene fibers engineered and designed for use in concrete paving, complying with ASTM C 1116/C 1116M, Type III, 1/2 to 1-1/2 inches long.

2.07 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. ChemMasters, Inc.

b. Euclid Chemical Company (The); an RPM company.

c. L&M Construction Chemicals, Inc.

d. Or equal.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. ChemMasters, Inc.

b. Dayton Superior.

c. L&M Construction Chemicals, Inc.

d. Or equal.

2.08 RELATED MATERIALS

A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber in preformed strips.

B. Slip-Resistive Aggregate Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive aggregate of fused aluminum-oxide granules or crushed emery aggregate containing not less than 50 percent aluminum oxide and not less than 25 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.

C. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

D. Epoxy-Bonding Adhesive: ASTM C 881/C 881M, two-component epoxy resin capable of humid curing and bonding to damp surfaces; of class suitable for application temperature, of grade complying with requirements, and of the following types:

1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

E. Chemical Surface Retarder: Water-soluble, liquid, set retarder with color dye, for horizontal concrete surface application, capable of temporarily delaying final hardening of concrete to a depth of 1/8 to 1/4 inch.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. ChemMasters, Inc.

b. Scofield, L. M. Company.

c. Sika Corporation.

d. Or equal.

2.09 CONCRETE MIXES

A. Prepare design mixtures, proportioned according to ACI 211.1 and ACI 301, for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience. Mix designs are subject to approval of the county's testing laboratory.

1. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method. Do not use county's field quality control testing agency for this purpose.

2. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that comply with or exceed requirements.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than Portland cement in concrete as follows:

1. Fly Ash or Pozzolan: 15 percent.

C. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content of 2.0 to 4.0 percent.

D. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

E. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.

F. Synthetic Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.0 lb/cu. yd.

G. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

H. Concrete Mixtures: Normal-weight concrete.

1. Compressive Strength (28 Days): 3000 psi.

2. Minimum cementitious content: 564 lbs Portland cement per Cu. Yd.

3. Maximum W/C Ratio at Point of Placement: 0.50.

4. Slump Limit: 4 inches.

a. Slump Limit for Concrete Containing High-Range Water-Reducing Admixture: Not more than 8 inches after adding admixture to plant- or site-verified 2- to 3-inch slump.

2.10 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116M. Furnish batch certificates for each batch discharged and used in the Work.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For concrete batches of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.

2. For concrete batches larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.

3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixing time, quantity, and amount of water added.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 32 1373

CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Expansion and contraction joints within Portland cement concrete pavement.

2. Cold-applied joint sealants.

3. Joint-sealant backer materials.

4. Primers.

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.03 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of joint sealant and accessory.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.

B. Store and handle materials to comply with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.05 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.

2. When joint substrates are wet.

3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.

4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range for this characteristic.

2.02 COLD-APPLIED JOINT SEALANTS

A. Single-Component, Nonsag, Low-Modulus, Neutral-Curing, Silicone Joint Sealant for Concrete: ASTM D 5893/D 5893M, Type NS.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Roadsaver Silicone-SL; Crafco Inc.

b. 888; Dow Corning Corporation.

c. Pecora Corporation.

d. Or Equal.

B. Multicomponent, Pourable, Urethane, Chemically Curing Elastomeric Formulation Jet-Fuel-Resistant Joint Sealant for Concrete: ASTM C 920; Type M; Grade P; Class 12-1/2; for Uses T, M, and, as applicable to joint substrates indicated, O.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Vulkem 202; Mameco International.

b. Urexpan NR-300; Pecora Corporation.

c. Sealtight Gardox; W. R. Meadows, Inc.

d. Or Equal.

2.03 JOINT-SEALANT BACKER MATERIALS

A. Joint-Sealant Backer Materials: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by joint-sealant manufacturer, based on field experience and laboratory testing.

B. Retain "Round Backer Rods for Cold-Applied Joint Sealants" Paragraph below for use in joints such as contraction joints cut partially through paving material.

C. Round Backer Rods for Cold-Applied Joint Sealants: ASTM D 5249, Type 3, of diameter and density required to control joint-sealant depth and prevent bottom-side adhesion of sealant.

D. Retain "Backer Strips for Cold-Applied Joint Sealants" Paragraph below for use in joints extending through the full depth of the paving.

E. Backer Strips for Cold-Applied Joint Sealants: ASTM D 5249; Type 2; of thickness and width required to control joint-sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

2.04 PRIMERS

A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from pre-installation joint-sealant-substrate tests and field tests.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 32 1713

WHEELSTOPS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Precast Concrete Wheelstops.

1.02 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM A615 – Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

2. ASTM C33 – Standard Specification for Concrete Aggregates.

3. ASTM C150 – Standard Specification for Portland Cement.

4. ASTM C260 – Standard Specification for Air-Entraining Admixtures for Concrete.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Multipurpose Construction Adhesives: VOC levels of multipurpose construction adhesives used during construction shall not exceed 70 g/l VOC limit.

2.02 MATERIALS

A. Wheelstop Parking Bumpers: Precast concrete, conforming to the following:

1. Nominal Size: 6-inches high, 8 – 10 inches wide, 6 feet long.

2. Profile: California Department of Transportation standard profile.

3. Cement: ASTM C150, Portland Type I - Normal; gray color.

4. Concrete Materials: ASTM C33; water and sand.

5. Reinforcing Steel: ASTM A615, deformed steel bars; unfinished, strength and size commensurate with precast unit design.

6. Air Entrainment Admixture: ASTM C260.

7. Concrete Mix: Minimum 4000 psi, 28 day strength, air entrained to 5 to 7 percent.

8. Use rigid molds, constructed to maintain precast units uniform in shape, size and finish. Maintain consistent quality during manufacture.

9. Embed reinforcing steel in concrete.

10. Cure units to develop concrete quality, and to minimize appearance blemishes such as non-uniformity, staining, or surface cracking.

11. Minor patching in plant is acceptable, providing appearance of units is not impaired.

B. Attachment:

1. Asphalt Pavement - Dowels: #6 reinforcing steel bar; 30 - inches long.

2. Concrete Pavement – Adhesive: Epoxy adhesive suitable for permanent attachment to concrete.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 32 1723

PAVEMENT MARKINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Lines, letters, graphics and symbols painted onto pavement.

B. Painted curbs.

1.02 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section with a minimum three years of experience.

B. Manufacturer's representative shall be available to help resolve material questions.

C. The Contractor is responsible for project quality control in ensuring that the project is constructed per the plans and specifications.

1.03 PROJECT CONDITIONS

A. Apply painted pavement markings only to dry surfaces when air temperature is 50 degrees or above.

1.04 WARRANTY

A. Provide a guarantee against defects in the materials and workmanship for a period of one year from the date of substantial completion.

PART 2 - PRODUCTS

2.01 LOW VOC REQUIREMENTS

A. VOC limits shall conform to the requirements of the 2019 California Green Building Standards Code.

1. Traffic Marking Coating: VOC levels of traffic marking coatings used during construction shall not exceed 100 g/l VOC limit.

2.02 MATERIALS

A. Pavement and Curb Marking Paint: Quick-drying acrylic latex traffic marking paint conforming to Federal Specification TT-P-1952, Type I.

B. Game Line Paint: Water-Based Acrylic Paint.

1. Manufacturer / Product: PPG; *Hi-Hide Line Paint 920-226020*.

2. Primer: Deco Surfacing Systems; *Clear-Glo*.

C. Templates: Provide stencil templates for painting directional arrows, handicap symbols, letters, etc.; match requirements of the AHJ.

D. Colors (Verify colors with AHJ):

1. Parking / Traffic Lines and Lettering: White.

2. Drop Off / No Parking Zone Lines: White.

3. Traffic Symbols: White.

4. Handicap Parking Symbol: White and ADA Blue.

5. Fire Lane Curbs: Red.

6. Game Lines: To be determined.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 32 1800

ATHLETIC AND RECREATIONAL SURFACING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Furnishing all material, labor and equipment to successfully install the following playground surfaces:

1. Synthetic Turf Surface

2. Poured in Place (PIP) Rubberized Surface

1.02 DEFINITIONS

A. Critical Height: Standard measure of shock attenuation. According to CPSC, (Consumer Products Safety Commission) No. 325, this means "the fall height below which a life threatening head injury would not be expected to occur."

B. Fall Height: According to ASTM F1487, fall height is defined as “the vertical distance between a designated play surface and the protective surfacing beneath it.” The fall height of playground equipment should not exceed the critical height of the protective surfacing beneath it.

C. Use Zone: As defined by ASTM F1487.

D. Certified Playground Safety Inspector (CPSI): A Certified Playground Safety Inspector shall possess a current Certified Playground Safety Inspector certificate issued by National Playground Safety Institute.

1.03 PERFORMANCE REQUIREMENTS

A. Area Safety: Poured in place within playground use zones shall meet or exceed the performance requirements of the CPSC, ADA and Fall Height Test ASTM F1292-17a. The surface must yield both a peak deceleration of no more than 200 G-max and a Head Injury Criteria (HIC) value of no more than 1,000 for a head-first fall from the highest accessible portion of play equipment being installed as shown on drawings. IPEMA certification is required. (ASTM F1292-17a section 4.3.3: The laboratory test used to determine critical fall height shall have been conducted on surfacing material samples identical in design, materials, components, and thickness and manufactured as the installed playground surface).

B. Accessibility: NOTE: Children’s outdoor play areas shall be in compliance with the Uniform Federal Accessibility Standards (UFAS) FED-STD-795 and the Architectural and Engineer Instructions (9AEI) Design Criteria.

C. The requirements of the Americans with Disabilities Act. Accessibility Guidelines (ADAAG) 28 CFR Part 36 that provide equal or greater accessibility than the requirements of UFAS must also be met in children's outdoor play areas.

D. Poured in place surfaces intended to serve as accessible paths of travel for persons with disabilities shall be firm, stable and slip resistant, and shall meet the requirements of ASTM F 1951-14 and ASTM F1292-17a.

1.04 QUALITY ASSURANCE

A. The Contractor is responsible for project quality control in ensuring that the project is constructed per the plans and specifications.

B. Installer Qualifications: An employer of workers trained and approved by manufacturer.

C. IPEMA Certification- Products must be IPEMA certified to ASTM F1292.

1.05 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit playground surface system installation to be performed according to manufacturers' written instructions and warranty requirements.

B. Poured in Place surfacing must be installed on a dry sub-surface, with no prospect of rain within the initial drying period, and within the recommend temperature range of the manufacturer. Installation in weather condition of extreme heat, cold (less than 55 degrees F), and/or high humidity may affect cure time, and the structural integrity of the final product. Immediate surrounding sites must be reasonably free of dust conditions or this could affect the final surface look.

1.06 COORDINATION

A. Coordinate installation of playground surface systems with installation of playground equipment specified in Division 11 Section "Playground Equipment and Structures."

B. Sequencing and Scheduling: Poured in Place surfacing shall be installed after all playground equipment, shade structures, signs and any other items that will be within the surfacing area. Coordinate with General Contractor.

1.07 PRODUCT HANDLING

A. Protection: Use all means necessary to protect the materials of this section before, during, and after installation until the product is sufficiently installed and cured.

B. Delivery and Storage: Deliver all materials to the job site in their original containers with labels intact and legible. Store in accordance with manufacturer's recommendations.

C. Remove and discard empty containers in accordance with local ordinances.

1.08 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of playground surface system that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Reduction in impact attenuation.

b. Deterioration of surface and other materials beyond normal weathering.

c. Defects in materials and workmanship

B. The Synthetic Turf Installer and the Turf Manufacturer shall provide complete information on its warranty/insurance policy and coverage. Provide a complete sample copy of all warranty documentation.

PART 2 - PRODUCTS

2.01 SYNTHETIC TURF

A. Accessible, synthetic turf as shown on plans.

B. Installation team shall be established, insured installation firm experienced as a premium turf installer with suitable equipment and supervisory personnel, with a minimum of 5 years' experience with 15 foot wide tufted materials.

C. Turf roll seams: to be sewn or glued on site so that no openings larger than the porous backing mat openings are created.

D. The entire system shall be resistant to weather, including ultra-violet light and heat degradation; insects, rot, mildew and fungus growth and be non-allergenic and non-toxic.

E. Color: Green

2.02 POURED IN PLACE (PIP) RUBBERIZED SURFACE

A. Rubberized play surface as shown on plans.

B. Depth of PIP necessary to provide the critical fall height is as follows:

DEPTH	CRITICAL FALL HEIGHT
1.75"	3 feet
2.00"	4 feet
2.50"	5 feet
3.00"	6 feet

3.50”	7 feet
3.75”	8 feet
4.25”	9 feet
5.00”	10 feet

C. Materials: No substitution of other materials shall be permitted.

1. Primer: A single component, moisture-cured polyurethane.

2. Binder: An MDI based, elastomeric, polyurethane pre-polymer with low odor and exceptional weathering and binding attributes.

3. SBR Black Base Layer:

   a. Recycled SBR rubber buffing

   b. 3/8-inch sieve with less than 4% dust (6-16 mesh)

   c. Containment Bags shall provide ample moisture protection.

4. EPDM Wear Layer:

   a. 1/2-inch EPDM cap thickness.

   b. UV Stabilized virgin EPDM rubber.

   c. EPDM shall be full color. No coated rubber is permitted.

   d. Sieve sizes of 1.0mm – 3.5mm.

5. Binder / SBR and binder / EPDM mix ratios shall be determined by the specified system.

6. Basis of Design Product: FibarPIP System.

7. Color: To be determined. Contractor to provide chart of available colors for client selection.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 32 3300

SITE FURNISHINGS

PART 1 - GENERAL

1.01 SUMMARY

A. Products Subject to compliance with requirements, available products that may be incorporated into the Work include:

1. Bicycle Rack.
2. Concrete Wall-top Wood Seat.
3. Pre-cast 24” Square Bench.
4. Basketball Goal.
5. Flower Shade Structure.
6. Mushroom Table and Stools.

PART 2 - PRODUCTS

2.01 BICYCLE RACK

A. Manufacturer: Huntco Site Furnishings.

B. Model: *Rambler*.

C. Materials: 2-inch Schedule 40 Steel Pipe.

D. Mount: Surface Mount per Manufacturer Instructions.

E. Finish: Powder Coating – BK-181 Gloss Black.

F. Quantity: Per Plan.

2.02 CONCRETE WALL WOOD-TOP SEAT

A. Manufacturer: Columbia Cascade Play Equipment.

B. Model: *Timberform Concrete Wall Mount Seats 2047-02-01* and *2047-6-01*.

C. Materials: Kiln-dried Ipe hardwood Slats.

D. Mount: Surface Mount per Manufacturer Instructions.

E. Finish: Black Powder Coated steel frame.

F. Quantity: Per Plan.

2.03 PRE-CAST BENCHES

A. Manufacturer: Landscape Forms, Inc.

B. Model: *Socrates 24" Bench*.

C. Materials: Cast Stone (concrete), polished finish.

D. Color: To be determined.

E. Installation: Per Manufacturer Instructions.

F. Quantity: Per Plan.

2.04 BASKETBALL GOAL

A. Manufacturer: Bison.

B. Model: *PR20 Tough-Duty Steel Fan Gooseneck Playground System*.

C. Materials: Provide Full System Including Post, Foundation, Backboard, Goal, and Net.

D. Finish: Galvanized Steel Tubing.

E. Quantity: Per Plan.

2.05 FLOWER SHADE STRUCTURE

A. Manufacturer: USA-Shade & Fabric Structures.

B. Model: *Flower Petals-up*. Also available in *Petals-Down* and *Petals-Flat* configurations.

C. Finish: Five fabric panels with multiple color options, to be determined.

D. Quantity: Per Plan.

2.06 TOADSTOOL / MUSHROOM TABLE AND FOUR SEATS

A. Manufacturer: ArtDinouveau.

B. Model: *Toadstool and Chairs*.

C. Finish: Made with fiberglass and internal steel armature, painted in two-pack paint as red and white toadstools or in a natural beige spotted finish of a traditional mushroom.

D. Quantity: Per Plan.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 32 4000

LANDSCAPE STONE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Site stonework to be approved on site by the Landscape Architect, including:

1. Landscape Boulders.

2. Basalt Columns.

3. Cobble Mulch.

4. Angular Rock Mulch.

1.02 DEFINITIONS

A. Basalt boulder standard reference size, weight, and average dimensions

Size	Approx. Weight	Average Dimensions
Two-man boulder	200 - 700 lbs.	18 – 28 inches
1/2 ton		
Three-man boulder	700 – 2,000 lbs.	28 – 36 inches
1 ton		
Four-man boulder	2,000 – 4,000 lbs.	36 – 48 inches
2 ton		
Five-man boulder	4,000 – 6,000 lbs.	48 – 54 inches
3 ton		
Six-man boulder	6,000 – 8,000 lbs.	54 – 60 inches
4 ton		

1. Basalt Boulders weigh approximately 175 pounds (lbs.) cubic foot (cf.).

2. Boulders less than 1.0 cubic foot (cf.) in volume shall not be used.

1.03 QUALITY ASSURANCE

A. Single-Source Responsibility for Boulders: Obtain boulder from a single quarry with resources to provide materials of consistent quality in appearance and physical properties, including the capacity to cut and finish the material without delaying the progress of the work.

B. Information on the Drawings and in the Specifications establishes the requirements for both aesthetic effects and performance of the boulder. Aesthetic effects relative to the formal characteristics are indicated by dimensions, arrangement, alignment, and profiles of components and assemblies as they relate to sight lines and relationships to one another and to adjoining construction; performance is indicated by criteria subject to verification either by preconstruction or field test, if applicable, or by in-service experience.

C. Do not modify intended aesthetic effects, except with the Landscape Architect's approval, and only to the extent exclusively needed to comply with the performance requirements. Where modifications are proposed, submit comprehensive explanatory data for review.

D. Mock-Ups: On-site mock-ups are required for the following. Accepted mock-ups can be incorporated into finished work.

1. Cobble Mulch.

2. Angular Roch Mulch.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the project site in undamaged condition.

B. Store and handle the boulders and related materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, breakage, chipping, or other causes.

C. Do not use pinch or wrecking bars.

D. Lift with wide-belt-type slings where possible; do not use wire rope or ropes containing tar or other substances that might cause staining.

PART 2 - PRODUCTS

2.01 MATERIALS – GENERAL

A. Provide matched boulders from a single quarry from a single bed of quarry stratum unless the boulders from randomly selected blocks are acceptable to the Owner’s Representative for aesthetic effect.

B. Subject to compliance with requirements, provide the following:

1. Boulders shall not have sharp edges or points. Contractor to grind smooth sharp edges or points after installation to equal a 1/2” radius minimum. Edges will be smoothed to the requirements of Owner’s Playground Safety Inspector. Contractor to provide finished samples to demonstrate an understanding of the range of acceptable smoothed edges for review prior to installation.

2. Boulders shall be solid and not flaking in any way.

3. If top of boulders are smooth, tops of boulders shall be bush hammered to provide a rough, slip resistant texture at the discretion of the Owner's Representative.

2.02 LANDSCAPE BOULDERS

A. Landscape Boulders:

1. Type: Apache Sunset Boulders, supplied by Southwest Boulder, Inc. or approved equal.

a. Contractor shall provide the following percentages

12" – 16" min. dia. – 5% of total quantity

24" – 34" min. dia. – 50% of total quantity

34" – 40" min. dia. – 45% of total quantity

2. Quantity: Per Plan.

2.03 BASALT COLUMNS

A. Double Texture Basalt:

1. Product: Select from local quarry and match color of boulders.

a. Character: 24"-32" diameter, angular columns, blocky in shape.

b. Length varies based on finish grades, approximate 32"-78" lengths.

c. Double textured, cored water columns.

d. Quantity: Number of columns may vary based on size, placement, and finished grades.

2.04 COBBLE STONE

A. Cobble Stone Mulch:

1. Products: Subject to compliance with requirements, provide the following:

a. Product: Mexican Beach Pebble, Southwest Boulder, Inc., or approved Equal.

b. Character: Smooth, water washed river stone.

c. Contractor shall provide the following percentages.

d. 3” – 6” min. dia. – 65% of total quantity.

e. 6” – 12” min. dia. – 35% of total quantity.

f. Color: Neutral hues of gray and buff.

g. Quantity: Per Plan.

h. Installation: Per Detail.

2.05 ANGULAR ROCK MULCH

A. Crushed Stone Aggregate

1. Size: 3/4-inch Minus.

Sieve Size	% Passing
3/4 in.	99-100%
1/2 in.	90-100%
#4	40-70%
#40	10-20%
#200	0-5%

2. Quantity: Per Plan.

3. Installation: Per approval of mock-up.

B. Soil Separation Fabric: Non-Woven Geotextile Mirafi 140N

C. Commercial Grade Steel Edging: Refer to Section 32 9300 Plants for steel edging requirements.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 32 8400

IRRIGATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Labor, equipment, transportation, and services to furnish and install the underground sprinkler system as shown on Drawings and herein specified.

1.02 SYSTEM DESIGN

A. Design Pressures: As indicated on Drawings, at connection to building system and at last head in circuit. Notify Architect if available pressure varies significantly from plan.

B. Location of Heads: Design location is approximate. Make minor adjustments as necessary to avoid plantings and other obstructions.

C. Minimum Water Coverage: Distribution of water in planting areas shall be in a manner as shown on the Drawings. The Contractor is responsible to provide adequate precipitation to each plant.

D. Layout may be modified, if necessary to obtain complete coverage, to suit manufacturer's standard heads. Do not decrease number of heads indicated unless otherwise acceptable to Architect.

1.03 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed irrigation systems installations similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Manufacturer Qualifications: Provide underground irrigation system as a complete unit. Each type component produced by a single acceptable manufacturer, including heads, valves, controls and accessories.

C. Provide licenses, fees and other charges required for completion of the work.

1.04 HANDLING

A. Contractor shall exercise care in handling, loading and unloading, and storing plastic pipe and fittings. All plastic pipe and fittings shall be stored under cover before using and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lay flat so as not to be subject to undue bending or concentrated external load at any point. Any section of pipe that has been dented or damaged shall be discarded until said section of pipe is cut out and rejointed with a coupling.

1.05 WARRANTY

A. All materials, installation, equipment and operation shall be warranted for a period of one (1) year from final acceptance. All repairs, replacement, alterations, relocations and adjustments shall be made at the installing Contractor's expense.

1.06 TRAINING

A. Contractor shall conduct a training and orientation session covering the operation, adjustment, and maintenance of the irrigation system. Contractor shall be responsible for one full winterization and one spring activation of the sprinkler system and shall conduct these operations as part of the Owner's training and orientation procedures.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Pressure Pipe and Circuit Pipe (downstream from circuit valves):

1. PVC pipes where indicated on the drawings, shall be of polyvinyl chloride compound Type 1, Grade 1 or Type 1, Grade 2 conforming to ASTM D1784 Specifications. The pipe shall be approved and certified by the National Sanitation Foundation. Pipe shall be free from defects in materials, workmanship and handling. Acceptance of the materials shall be subject to passing the designated tests per ASTM Standards.

2. PVC solvent weld pipe shall be of PVC 1120 or PVC 1220 materials and shall have 200 psi minimum pressure rating with SDR 21 walls which conform to ASTM D2241. PVC pipe with walls heavier than SDR 21 shall be installed when noted on the drawings and specified in the special provisions. PVC threaded pipe shall be of PVC 1120 or PVC 1220 material and shall be schedule 80 which conforms to ASTM D1785.

3. Each length of PVC pipe is to be marked with an identifying extrusion "run" number and the manufacturer's name or trade name plus the pipe size and schedule.

4. PVC Solvent Cement: Weld-on 721 with primer or approved meeting N.S.F. approval for type I and II PVC through 6-inches and meeting requirements of ASTM D2564.

5. Galvanized steel pipe, ANSI/ASTM A120, Schedule 40.

6. Pipe Fittings:

a. PVC Fittings shall be of polyvinyl chloride compound Type 1, Grade 1 or Type 1, Grade 2 conforming to ASTM D1784 Specifications. The fittings shall be approved and certified by the National Sanitation Foundation. Fittings shall be free from defects in materials, workmanship and handling. Acceptance of the materials shall be subject to passing the designated tests per ASTM Standards.

b. Plastic pipefittings shall conform to ASTM D2466, Type 1, Grades 1 or 2. Pipe may be belled on one end with the dimensions of the tapered bell conforming to ASTM D2672.

c. For galvanized steel pipe, ANSI B 16.3 galvanized malleable iron screwed fittings.

B. Valves: Manufacturer's standard, of type and size indicated, and as follows:

1. Furnish glass filled nylon bodies, unless otherwise indicated.

2. Automatic remote control valves shall be globe or angle globe pattern with flanged or screwed connections as required. Screwed valves shall be provided with union connections.

3. Valves shall be of a "normally closed" design and shall be electric solenoid operated, having maximum rating of 6.5 watts utilizing 24-volt AC power. Solenoids shall be directly attached to the valve bonnets or body with all control parts completely internal. The opening and closing speed of the valve shall be a minimum of 3 seconds for opening and closing. A manual control bleed cock shall be included on the valve to operate the valve without the requirement of electric current. A manual shutoff stem with cross handle for wrench operation is required for manual adjustment from fully closed to wide open. Once the manual adjustment is set, the valve shall operate automatically in the adjust position. Water flow shall be completely stopped when the control valve is closed either manually or automatically. Automatic control valves and automatic controllers need not be of the same manufacturer.

C. Backflow Preventor: shall be of a type approved by the California State Department of Social and Health Services. The reduced pressure valve shall be tested by backflow prevention device testers certified by the California State Department of Social and Health Services. Test records shall document that reduced pressure valves are in good operating condition prior to flushing and testing of sprinkler system mainline pipes. Reduced pressure valve units shall be repaired or replaced whenever they are found defective through the one-year warrantee period and through first spring start-up or whichever is longer.

D. Quick Coupler Valves:

1. Quick coupler valves shall have a service rating not less than 150 psi. for non-shock cold water. Body of the valves shall be of single piece construction of cast leaded semi-red brass alloy No. 5-A confirming to ASTM Designation B 145. Base of the valve shall have standard female pipe threads. Design of the valve shall be such that it will open only upon inserting a coupler device and will close as the coupler is removed from the valve. Leakage of water between the coupler and valve body when in operation will not be accepted. The valve body receiving the coupler shall be designed with double worm slots to allow smooth action in opening and closing of the valve with a minimum of effort. Slots shall be notched at the base to hold the coupler firmly in the open position. Couplers shall be of the same materials as the valve body with stainless steel double guide lugs to fit the worm slots.

2. Quick couplers shall be of one-piece construction with steel reinforced side handler attached. Furnish one valve key and hose swivel for each quick coupler.

E. Gate Valves: Gate valves when called for on the Drawings shall be heavy duty bronze resilient wedge conforming to the requirements of ASTM Designation B62. Valves shall be of the same size as the pipes on which they are placed and shall have union or flange connections. Service ratings (for non-shock cold water) shall be 200-psi valves shall be of the double disk, taper seat type, with rising stem, union bonnet and hand wheel. Manufacturer's name, type of valve and size shall be cast on the valve.

F. Ball Valves:

1. When called for on plan as main line isolation valves shall be heavy-duty brass or bronze, 400 psi minimum.

2. When used to isolate single control valves, ball valves shall be heavy-duty brass or bronze, 400 psi, minimum.

G. Sprinkler Heads: Manufacturer's standard unit designed to provide uniform coverage over entire area of spray, at available water pressure.

1. All sprinklers shall be of type specified on the Drawings or approved.

2. Sprinklers shall be installed as per construction details.

H. Valve Box: All remote control valves, manual control valves, zone shut-off valves, gate valves or globe valves unless otherwise indicated, shall be installed in suitable thermoplastic valve access box of proper size as required for easy access to the valve. Access boxes shall be complete with approved thermoplastic locking cover. Valves shown on the Drawings or otherwise indicated or specified to be installed using valve markers shall not require valve access boxes. All valve access boxes shall be installed on suitable base of gravel for proper foundation of box and easy leveling of box to proper grade and also to provide proper drainage of the access box. All valve access boxes shall be provided with proper length and size extensions, wherever required, to bring the valve boxes level with the finish grade.

I. Drainage Backfill: Cleaned gravel or crushed stone, graded from 3-inches maximum to 3/4-inch minimum.

J. Wire: NEC #14 AWG gauge min, type UF copper. White neutral, red and/or lead, and blue spare. No splices permitted between valves and controller. Tag lead wires in valve box with valve number using waterproof tags.

K. Hose Bibs: Hose bibs shall be constructed of bronze or brass, angle type threaded to accommodate a 3/4-inch hose connection and shall be key operated. Design shall prevent operation by wrench or pliers.

2.02 OTHER MATERIALS

A. Keys: One-Rainbird 33DK Keys and one SH-O hose ell for each quick coupling valve.

B. Low voltage control wire: Color coded direct burial cable, solid copper, type UF, UL listed for direct burial in ground. Use white for common wire, red for control wires, and blue for spares. Size of wire shall be in accordance with manufacturer's recommendation, but in no case smaller than single strand number 14 gauge, (except for spare 18 gauge multi-strand wire as indicated on Drawings).

C. Electrical connectors: 3M DBY

D. Drain rock: 1-1/2-inch round drain rock; no fines.

E. Pipe backfill material: Imported riverbank sand or on-site rock free soil.

F. Detector tape: 2-inches wide blue metallic tape with permanent "Caution, Buried Waterline Below". Allen Systems or Line guard.

G. Permanent waterproof number tags for control wires:

1. In valve boxes: Aluminum tie-on markers as manufactured by Permatag and available from Garden Distributors NW, (503) 777-2244, or approved.

2. In controller: coated adhesive numbers labels.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 32 92 00

TURF AND GRASSES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Seed – Turf and Native.

1.02 PERFORMANCE REQUIREMENTS

A. Turf installations shall meet the following criteria as determined by Owner:

1. Satisfactory Seeded turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.

B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

1.03 DEFINITIONS

A. Finish Grade: Elevation of finished surface of planting soil.

B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.

C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. These include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

D. Planting Soil: Existing, native surface topsoil or imported soil to be amended and used for landscape planting.

E. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or top surface of a fill or backfill before planting soil is placed.

F. Rock Hound: Remove all rock and extraneous material larger than 1-inch diameter in planting and seeding areas.

G. Owner's Representative: The person or entity, appointed by the Owner to represent their interest in the review and approval of the work and to serve as the contracting authority with the Contractor. The Owner's Representative may appoint other persons to review and approve any aspects of the work

1.04 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf and meadow establishment.

1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.

2. Experience: Five years of experience in turf installation in addition to requirements in Section 01 4523 (Quality Requirements).

3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.

4. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:

a. Landscape Industry Certified Technician - Exterior.

b. Landscape Industry Certified Lawncare Manager.

c. Landscape Industry Certified Lawncare Technician.

5. Pesticide Applicator: State licensed, commercial.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws, as applicable.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.

2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.

3. Accompany each delivery of bulk materials with appropriate certificates.

1.06 FIELD CONDITIONS

A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of Substantial Completion.

1. Spring Planting: March 1 – April 15.

2. Fall Planting: September 1 – October 15.

B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

1.07 MAINTENANCE SERVICE

A. Initial Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required below. Begin maintenance immediately after each area is seeded and continue until acceptable turf is established but for not less than the periods as listed below.

1. Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Begin maintenance immediately after each area is seeded and continue until acceptable growth is established, but for not less than the following periods:

a. 90 days from date of Substantial Completion

1) When initial maintenance period has not elapsed before end of planting season, or if seed is not fully established, continue maintenance during next planting season.

2. General: Maintain and establish seeded area by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and re-mulch to produce a uniformly smooth surface. Provide materials and installation the same as those used in the original installation.

a. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.

b. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.

c. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

3. Mowing:

   a. Seeded turf area to be maintained in manicured state. Mow seeded turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings.

   b. Buffer and Wetland. Do not mow within habitat areas.

4. Maintenance Fertilization: Apply additional maintenance fertilizer to turf areas 30 days after initial seeding at manufacturer's recommended rates. Apply fertilizers only when turf is dry.

5. Apply pesticides and other chemical products and biological control agents in accordance with authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

6. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

PART 2 - PRODUCTS

2.01 SEED

A. Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.

B. Bermuda Grass Seed Mix: Warm season Bermuda Grass seed mix by S&S Seeds, or approved equal. Install per manufacturer's recommendations.

C. Erosion Control Seed Mix: Basic native erosion control mix by S&S Seeds, or approved equal.

SPECIES	COMMON NAME	BULK #'s/ACRE	MIN% PLS*
Bromus carinatus'Cucamonga'	Cucamonga brome	20.00	86
Festuca microstachys	Small fescue	8.00	90
Trifolium ciliatum	Foothill/Tree clover	4.00	86

Apply seed at rate of 32 pounds per acre.

2.02 INORGANIC SOIL AMENDMENTS

A. Lime: ASTM C602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent and as follows:

1. Class: T, with a minimum of 99 percent passing through No. 8 sieve and a minimum of 75 percent passing through No. 60 sieve.

2.03 ORGANIC SOIL AMENDMENTS

A. Compost: Well-composted, stable, and weed-free organic matter, per specification Section 32 9300 (Plants).

2.04 FERTILIZERS

A. Contractor shall collect and submit two samples of site topsoil, representative of the top eight (8) inches of planting soil, to a locally known soil testing laboratory for analysis and recommendations. Soil samples shall be taken from proposed seeded areas. Sample shall be taken to a depth of 8 inches. Contractor shall amend per soil testing laboratory recommendations. Soil amendments in this specification are provided for bidding purposes only.

B. All fertilizers shall be of an approved brand with a guaranteed chemical analysis as required by USDA regulations.

C. All fertilizers shall be dry and free flowing.

D. Bonemeal in first paragraph below is organic and primarily phosphorous, has an alkaline reaction, and is nonburning.

E. Complete fertilizers: Meet requirements of applicable State fertilizer laws. Fertilizers shall be uniform in composition, dry and free flowing. Deliver to the site in original unopened containers each bearing manufacturer's guaranteed analysis.

1. Fertilizer Mix Type A: PAR EX 14-19-19 with IBDU Starter Mix for manual seeding, (PAR EX 18-16-16 with IBDU hydroseeders blend for hydroseeding), as available from Wilbur-Ellis, Portland, Oregon, (503) 227-3525, or approved equal

F. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

1. Fertilizer Mix Type B: Woodburn Fertilizer 25-5-10 with 50 percent Slow Release, as available from Turf Care Products, (503) 620-0946, or approved equal.

2.05 MULCHES FOR HYDROSEED MIX

A. Fiber Mulch: Biodegradable dyed-wood cellulose-fiber mulch, nontoxic, free of plant growth or germination-inhibitors, with maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

B. Wood fiber mulch shall be 100% wood fiber manufactured by the defibrating process from fir, hemlock, or alder.

C. The mulch shall have a minimum of 17% of fibers 8.5 mm or longer and 40% of the total fiber exceeding 3.5 mm in length.

D. Wood fiber mulch shall be in uniform weight with the unit weight displayed clearly on each package. Fiber shall be dyed green in color to provide visual metering of application. Tackifier shall be incorporated into the wood fiber in the drying process. Percentage of tackifier shall not be less than 3% - 10% with the percentage used clearly labeled on the outside of the package.

E. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.

F. Asphalt Emulsion: ASTM D977, Grade SS-1; nontoxic and free of plant-growth or germination inhibitors.

2.06 PESTICIDES

A. General: Pesticide, registered and approved by EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.

C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 32 9300

PLANTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Topsoil.

B. Soil Amendments.

C. Plant Materials.

D. Miscellaneous Products.

1.02 DESCRIPTION OF WORK

A. Extent of landscape development work is shown on Drawings and in schedules.

B. Subgrade Elevations: Excavation, filling and grading required to establish elevations shown on Drawings are not specified in this Section. Refer to Earthwork Sections.

C. Work shall include staking, final grading, soil preparation and fertilization, trees, shrubs and other plant material, ground cover and lawn planting, and establishment period.

D. Related Section:

1. Section 32 8400 (Irrigation).

1.03 MAINTENANCE AND ESTABLISHMENT OF PLANTS

A. Shall consist of caring for plantings as herein specified.

B. Begin immediately after planting acceptance and continue for 90 calendar days.

C. Include watering, weeding, pruning, fertilizing, insect control, and replacement of dead plants or trees of those in an unhealthy or unsightly condition or which have lost their natural shape or both due to dead branches or excessive pruning.

1. Weeds shall be removed from the planting beds as often as necessary to maintain a presentable appearance.

2. Pruning shall be done to maintain a neat, healthy appearance, in accordance with good horticultural practice for that particular type of tree.

3. Dead plants and trees shall be promptly removed. Replacement shall be accomplished promptly if within a locally recognized planting season; if not the next locally recognized planting season, notwithstanding that such planting season may run beyond the maintenance period.

4. Insect control shall be promptly accomplished upon need or as recommended by Contractor to prevent appearance of insects.

5. Dead trees, clippings and weeds shall be removed and legally disposed of offsite.

1.04 QUALITY ASSURANCE

A. Subcontract landscape work to a single firm specializing in landscape work.

B. Chemical Herbicides: Application of chemical herbicides shall be performed by an experienced applicator licensed by the State of California for the class of herbicides utilized. The Contractor shall furnish the Owner evidence that applicator is licensed, and the pesticide used is registered in the State. The recommendations for each herbicide used. The applicator shall use extreme care to ensure confinement of the chemicals within the areas designated.

C. The Contractor shall assume all responsibility for repairing any area rendered unsatisfactory for planting by reason of chemical application. Any damage to adjacent areas shall be repaired to the satisfaction of the property Owner, and the cost of such repair shall be borne by the Contractor.

D. Quality Control:

1. General: Ship landscape materials with certificate of inspection required by governing authorities. Comply with regulations applicable to landscape materials.

2. Do not make substitutions. If specified landscape material is not obtainable, submit to Architect proof of non-availability and proposal for use of equivalent material. When authorized, adjustment of Contract amount will be made.

3. Analysis and Standards: Package standard products with manufacturer's certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.

4. Trees and Shrubs: Furnish and install trees and shrubs grown in a recognized nursery in accordance with good horticultural practice. Furnish and install healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun-scald, injuries, abrasions, and disfigurement.

5. Potted and container stock plants shall have been grown in the containers for a minimum of 1 year and a maximum of 2 years. Root ball shall fill the container but show no evidence of being root bound.

6. Sizes: Furnish and install trees and shrubs of sizes shown or specified. Trees and shrubs of larger size may be used if acceptable to Architect, and if sizes of roots or balls are increase proportionately.

7. Inspection: Architect reserves right to inspect trees and shrubs either at place of growth or at site before planting, for compliance with requirements for name, variety, size and quality. A minimum of 30% of materials shall be labeled with name, variety and source. Plants not meeting standards or not grown under similar climatic conditions as the project will be rejected. Rejected materials shall be marked and removed immediately from the site. Contractor shall replace rejected materials at no additional cost to the Owner.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in containers weight, analysis and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site.

B. Product Handling: Care shall be exercised to protect the plants before, during and after planting. Any damaged plants shall be replaced immediately. Handling and shipping shall be done in a manner that is not detrimental to the plants.

C. Protection of Work: Place stakes and twine barrier (visible day or night) around any planted area if required as a barrier for pedestrians, animals, vehicles, or any other cause until substantial completion.

D. Plant material shall be packed for shipment in accordance with prevailing practice for the type of plant being shipped, and shall be protected at all times against drying, sun, wind, heat, freezing, and similar detrimental conditions both during shipment and during related handling. Where necessary plant material shall be temporarily heeled in. When transported in closed vehicles, plants shall receive adequate ventilation to prevent “sweating”. When transported in open vehicles, plants shall be protected by tarpaulins or other suitable cover material.

E. Trees and Shrubs: Furnish and install freshly dug trees and shrubs. Do not prune prior to delivery. Do not bend or bind-tie trees or shrubs in such a manner as to damage bark, break branches or destroy natural shape. Provide protective covering during delivery.

F. Deliver trees and shrubs after preparations for planting have been completed and plant immediately. If planting is delayed more than 6 hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage, and keep roots moist.

G. Do not remove container grown stock from containers until planting time.

H. Label at least 30-percent of all trees per variety and 30-percent of all shrubs per variety with a securely attached waterproof tag bearing legible designation of botanical and common name.

1.06 SEQUENCING AND SCHEDULING

A. Acceptance: Do not install plant materials prior to acceptance by Owners representative.

B. Coordination: Coordinate with the work of other sections to insure the timely and proper installation of plant materials so that work is not delayed.

1.07 JOB CONDITIONS

A. Contractor shall observe conditions under which work is to be performed, and notify Architect of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to installer. Should conditions not mentioned on the Drawings be found to exist, the Contractor shall notify the Architect as soon as possible.

B. Proceed with and complete landscape work as rapidly as portions of site become available, working within seasonal limitations for each kind of landscape work required.

C. Utilities: Determine location of underground utilities and perform work in a manner, which will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.

D. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify Architect before planting.

E. Planting Time: Plant or install materials during normal planting seasons for each type of landscape work required. Correlate planting with specified maintenance period to provide maintenance from date of substantial completion. Planting outside of optimal weather conditions will be at contractor's risk for plant replacement prior to Conditions of Final Acceptance.

1. Spring Planting: March 1 – April 15.

2. Fall Planting: September 1 – October 15.

F. Planting Schedule: Prepare a proposed planting schedule. Schedule dates for each type of landscape work during normal seasons for such work in area of side. Correlate with specified maintenance periods to provide maintenance from date of substantial completion. Once accepted, revise dates only as approved in writing, after documentation of reasons for delays.

G. Coordination with Lawns: Plant trees and shrubs after final grades are established and prior to planting of lawns, unless otherwise acceptable to Architect. If planting of trees and shrubs occurs after lawn work, protect lawn areas and promptly repair damage to lawns resulting from planting operations.

1.08 WARRANTY

A. Warranty lawns through maintenance period, and until final acceptance.

B. Warranty trees and shrubs, for a period of one year after date of substantial completion, against defects including death and unsatisfactory growth, except for defects resulting from neglect by Owner, abuse or damage by others, or unusual phenomena or incidents which are beyond landscape installer's control.

C. Remove and replace trees, shrubs, or other plants found to be dead or in unhealthy condition during warranty period. Make replacements during growth season following end of warranty period. Replace trees and shrubs, which are in doubtful condition at end of warranty period; unless, in opinion of Architect, it is advisable to extend warranty period for a full growing season.

D. Another inspection will be conducted at end of extended warranty period, if any, to determine acceptance or rejection. Only one replacement will be required at end of warranty period, except for losses or replacements due to failure to comply with specified requirements.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Topsoil:

1. On-site Topsoil: Existing on-site material, suitable for use to strip, stockpile, and re-use as topsoil shall be free draining, fertile, friable sandy loam meeting the following requirements: soil shall contain no less than 3 percent and no more than 5 percent humas material: pH shall be between 5.5 and 7.5, be free of subsoil, clay lumps, weeds, roots, and other objectionable materials. Maximum particle size shall be 1/2-inch with 97-100 percent passing the 3/8-inch screen. Soluble salts shall not exceed 600 ppm. On-site soils not meeting these requirements can be used if it can be demonstrated to the Architect that by screening, and/or the addition of amendments, the materials can be brought to specifications. Contractor shall provide a soil analysis of the final product, verifying the quality of the material. Acceptance is subject to the approval of the Architect.

2. Imported Topsoil shall be free draining, fertile, friable sandy loam meeting the following requirements: soil shall contain no less than 3 percent and no more than 5 percent humas material: pH shall be between 5.5 and 7.5, be free of subsoil, clay lumps, weeds, roots, and other objectionable materials. Maximum particle size shall be 1/2-inch with 97 -100 percent passing the 3/8-inch screen. Soluble salts shall not exceed 600 ppm. A soil analysis, and soil samples shall be provided to the Architect for approval.

B. Soil Amendments:

1. Lime: Calprill Lime or approved.

2. Complete Fertilizers: Meet requirements of applicable state fertilizer laws and EPA for fertilizer made from recovered organic material. Uniform in composition, dry and free flowing. Deliver to the site in original, unopened containers each bearing manufacturers guaranteed analysis.

3. Fertilizer: Agriform 21 gram 20-10-5 planting tablets, or approved equal.

4. Compost Material: Meet requirements of EPA for compost made from recovered organic material.

C. Plant Materials:

1. Name and Variety: Provide plant materials true to name and variety established by American Joint Committee on Horticultural Nomenclature “Standard Plant Names”, Second Edition, 1942.

D. Miscellaneous Products:

1. Wood Mulch: 1-inch minus ground wood bark mulch.

2. Stakes and Guys: Furnish and install stakes of sound new softwood, free of knotholes and other defects. Furnish and install miscellaneous hardware, wire and accessories as shown on details. Stain tree stakes with one coat of dark brown oil based stain.

3. Landscape Edging: Commercial grade steel edging.

a. Thickness: 3/16-inch.

b. Height: 4-inch.

c. Length: 10’ to 16’ Sections

d. Stake: 15-inch tapered steel anchoring stakes (3/16-inch thick), spaced every 32-inch

e. Finish: Brown.

f. Installation: Install per manufacturers specifications.

2.02 QUALITY

A. Furnish and install unless otherwise specified, trees, shrubs, and other plants that comply with the recommendations and requirements of ANSI Z60.1, “Standard for Nursery Stock” and as further specified. No cold storage plants.

B. Sizes: Furnish and install trees and shrubs of the sizes shown or specified.

C. Plants shall not have cuts over 3/4" diameter which have not completely healed over. Leader shall be intact on all plants.

D. Potted and container stock plants shall have been grown in the containers for a minimum of twelve months and a maximum of two years. Root ball shall fill the containers but show no evidence of being root bound.

E. Plants shall not be picked up or moved by stems or branches but shall be lifted and handled from the container sides.

F. The Architect reserves the right to inspect plant materials for compliance with requirements for name, variety, size and quality. A minimum of 30% of the plant inventory shall be labeled with name, variety and source. Produce upon request, sales receipts for all nursery stock and certificates of inspection from Federal, State and other authorities. Plants not meeting standards or not grown under similar climatic conditions of the project will be rejected. Rejected plants shall be marked and removed immediately from the site. Contractor shall replace rejected plant materials at no additional cost to Owner.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 33 0500

COMMON WORK RESULTS FOR UTILITIES

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following:

1. Piping joining materials.
2. Transition fittings.
3. Dielectric fittings.
4. Sleeves.
5. Identification devices.
6. Grout.
7. Flowable fill.
8. Piped utility demolition.
9. Piping system common requirements.
10. Equipment installation common requirements.
11. Painting.
12. Concrete bases.
13. Metal supports and anchorages.

1.02 DEFINITIONS

A. Exposed Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions.

B. Concealed Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

C. ABS: Acrylonitrile-butadiene-styrene plastic.

D. CPVC: Chlorinated polyvinyl chloride plastic.

E. PE: Polyethylene plastic.

F. PVC: Polyvinyl chloride plastic.

1.03 ACTION SUBMITTALS

A. Product Data: For the following:

1. Dielectric fittings.

2. Identification devices.

1.04 INFORMATIONAL SUBMITTALS

A. Welding certificates.

1.05 QUALITY ASSURANCE

A. Steel Support Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Steel Piping Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."

1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."

2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

C. Comply with ASME A13.1 for lettering size, length of color field, colors, and viewing angles of identification devices.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

B. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

1.07 COORDINATION

A. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

B. Coordinate installation of identifying devices after completing covering and painting if devices are applied to surfaces.

C. Coordinate size and location of concrete bases. Formwork, reinforcement, and concrete requirements are specified in Section 03 3000 "Cast-in-Place Concrete."

PART 2 - PRODUCTS

2.01 PIPING JOINING MATERIALS

A. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.

1. ASME B16.21, nonmetallic, flat, asbestos free, 1/8-inch maximum thickness, unless otherwise indicated.

a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.

b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.

2. AWWA C110, rubber, flat face, 1/8 inch thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.

B. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

C. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.

D. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

E. Brazing Filler Metals: AWS A5.8, BCuP Series, copper-phosphorus alloys for general-duty brazing, unless otherwise indicated; and AWS A5.8, BAg1, silver alloy for refrigerant piping, unless otherwise indicated.

F. Welding Filler Metals: Comply with AWS D10.12/D10.12M for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

G. Solvent Cements for Joining Plastic Piping:

1. ABS Piping: ASTM D 2235.

2. CPVC Piping: ASTM F 493.

3. PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.

4. PVC to ABS Piping Transition: ASTM D 3138.

H. Fiberglass Pipe Adhesive: As furnished or recommended by pipe manufacturer.

2.02 TRANSITION FITTINGS

A. Transition Fittings, General: Same size as, and with pressure rating at least equal to and with ends compatible with, piping to be joined.

B. Transition Couplings NPS 1-1/2 and Smaller:

1. Underground Piping: Manufactured piping coupling or specified piping system fitting.

2. Aboveground Piping: Specified piping system fitting.

C. AWWA Transition Couplings NPS 2 and Larger:

1. Description: AWWA C219, metal sleeve-type coupling for underground pressure piping.

D. Plastic-to-Metal Transition Fittings:

1. Description: CPVC and PVC one-piece fitting with manufacturer's Schedule 80 equivalent dimensions; one end with threaded brass insert, and one solvent-cement-joint end.

E. Plastic-to-Metal Transition Unions:

1. Description: MSS SP-107, CPVC and PVC four-part union. Include brass threaded end, solvent-cement-joint plastic end, rubber O-ring, and union nut.

F. Flexible Transition Couplings for Underground Nonpressure Drainage Piping:

1. Description: ASTM C 1173 with elastomeric sleeve, ends same size as piping to be joined, and corrosion-resistant metal band on each end.

2.03 DIELECTRIC FITTINGS

A. Dielectric Fittings, General: Assembly of copper alloy and ferrous materials or ferrous material body with separating nonconductive insulating material suitable for system fluid, pressure, and temperature.

B. Dielectric Unions:

1. Description: Factory fabricated, union, NPS 2 and smaller.

a. Pressure Rating: 150 psig minimum at 180 deg F.

b. End Connections: Solder-joint copper alloy and threaded ferrous; threaded ferrous.

C. Dielectric Flanges:

1. Description: Factory-fabricated, bolted, companion-flange assembly, NPS 2-1/2 to NPS 4 and larger.

a. Pressure Rating: 150 psig minimum.

b. End Connections: Solder-joint copper alloy and threaded ferrous; threaded solder-joint copper alloy and threaded ferrous.

D. Dielectric-Flange Kits:

1. Description: Nonconducting materials for field assembly of companion flanges, NPS 2-1/2 and larger.

a. Pressure Rating: 150 psig minimum.

b. Gasket: Neoprene or phenolic.

c. Bolt Sleeves: Phenolic or polyethylene.

d. Washers: Phenolic with steel backing washers.

E. Dielectric Couplings:

1. Description: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining, NPS 3 and smaller.

a. Pressure Rating: 300 psig at 225 deg F.

b. End Connections: Threaded.

F. Dielectric Nipples:

1. Description: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining.

a. Pressure Rating: 300 psig at 225 deg F.

b. End Connections: Threaded or grooved.

2.04 SLEEVES

A. Mechanical sleeve seals for pipe penetrations are specified in Section 22 0517 "Sleeves and Sleeve Seals for Plumbing Piping."

B. Galvanized-Steel Sheet Sleeves: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.

C. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized, plain ends.

D. Cast-Iron Sleeves: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

E. PVC Pipe Sleeves: ASTM D 1785, Schedule 40.

F. Molded PE Sleeves: Reusable, PE, tapered-cup shaped, and smooth outer surface with nailing flange for attaching to wooden forms.

2.05 IDENTIFICATION DEVICES

A. General: Products specified are for applications referenced in other utilities Sections. If more than single type is specified for listed applications, selection is Installer's option.

B. Equipment Nameplates: Metal permanently fastened to equipment with data engraved or stamped.

1. Data: Manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliances, and essential data.

2. Location: Accessible and visible.

C. Snap-on Plastic Pipe Markers: Manufacturer's standard preprinted, semirigid, snap-on type. Include color-coding according to ASME A13.1, unless otherwise indicated.

D. Pressure-Sensitive Pipe Markers: Manufacturer's standard preprinted, color-coded, pressure-sensitive-vinyl type with permanent adhesive.

E. Pipes with OD, Including Insulation, Less Than 6 Inches: Full-band pipe markers, extending 360 degrees around pipe at each location.

F. Pipes with OD, Including Insulation, 6 Inches and Larger: Either full-band or strip-type pipe markers, at least three times letter height and of length required for label.

G. Lettering: Manufacturer's standard preprinted captions as selected by Architect.

H. Plastic Tape: Manufacturer's standard color-coded, pressure-sensitive, self-adhesive vinyl tape, at least 3 mils thick.

1. Width: 1-1/2 inches on pipes with OD, including insulation, less than 6 inches; 2-1/2 inches for larger pipes.

2. Color: Comply with ASME A13.1, unless otherwise indicated.

I. Valve Tags: Stamped or engraved with 1/4-inch letters for piping system abbreviation and 1/2-inch sequenced numbers. Include 5/32-inch hole for fastener.

1. Material: 0.032-inch-thick, polished brass.

2. Material: 0.0375-inch-thick stainless steel.

3. Material: 3/32-inch-thick plastic laminate with 2 black surfaces and a white inner layer.

4. Material: Valve manufacturer's standard solid plastic.

5. Size: 1-1/2 inches in diameter, unless otherwise indicated.

6. Shape: As indicated for each piping system.

J. Valve Tag Fasteners: Brass, wire-link or beaded chain; or brass S-hooks.

K. Engraved Plastic-Laminate Signs: ASTM D 709, Type I, cellulose, paper-base, phenolic-resin-laminate engraving stock; Grade ES-2, black surface, black phenolic core, with white melamine subcore, unless otherwise indicated. Fabricate in sizes required for message. Provide holes for mechanical fastening.

1. Engraving: Engraver's standard letter style, of sizes and with terms to match equipment identification.

2. Thickness: 1/16 inch, for units up to 20 sq. in. or 8 inches in length, and 1/8 inch for larger units.

3. Fasteners: Self-tapping, stainless-steel screws or contact-type permanent adhesive.

L. Plastic Equipment Markers: Manufacturer's standard laminated plastic, in the following color codes:

1. Green: Cooling equipment and components.

2. Yellow: Heating equipment and components.

3. Brown: Energy reclamation equipment and components.

4. Blue: Equipment and components that do not meet criteria above.

5. Hazardous Equipment: Use colors and designs recommended by ASME A13.1.

6. Terminology: Match schedules as closely as possible. Include the following:

a. Name and plan number.

b. Equipment service.

c. Design capacity.

d. Other design parameters such as pressure drop, entering and leaving conditions, and speed.

7. Size: 2-1/2 by 4 inches for control devices, dampers, and valves; 4-1/2 by 6 inches for equipment.

M. Plasticized Tags: Preprinted or partially preprinted, accident-prevention tags, of plasticized card stock with mat finish suitable for writing.

1. Size: 3-1/4 by 5-5/8 inches.

2. Fasteners: Brass grommets and wire.

3. Nomenclature: Large-size primary caption such as DANGER, CAUTION, or DO NOT OPERATE.

N. Lettering and Graphics: Coordinate names, abbreviations, and other designations used in piped utility identification with corresponding designations indicated. Use numbers, letters, and terms indicated for proper identification, operation, and maintenance of piped utility systems and equipment.

1. Multiple Systems: Identify individual system number and service if multiple systems of same name are indicated.

2.06 GROUT

A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.

1. Characteristics: Post hardening, volume adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.

2. Design Mix: 5000-psi, 28-day compressive strength.

3. Packaging: Premixed and factory packaged.

2.07 FLOWABLE FILL

A. Description: Low-strength-concrete, flowable-slurry mix.

1. Cement: ASTM C 150, Type I, Portland.

2. Density: 115- to 145-lb/cu. ft.

3. Aggregates: ASTM C 33, natural sand, fine.

4. Admixture: ASTM C 618, fly-ash mineral.

5. Water: Comply with ASTM C 94/C 94M.

6. Strength: 100 to 200 psig at 28 days.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 33 4100

STORM UTILITY DRAINAGE PIPING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Pipe and fittings.
2. Nonpressure transition couplings.
3. Cleanouts.
4. Drains.
5. Encasement for piping.
6. Cleanouts.
7. Channel drainage systems.
8. Catch basins.
9. Stormwater inlets.
10. Pipe outlets.
11. Stormwater disposal systems.

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1. Drop inlets.
2. Cleanouts and drains.
3. Pipe and fittings.

B. Shop Drawings:

1. Cleanouts: Include plans, elevations, sections, details, frames, and covers.
2. Catch basins. Include plans, elevations, sections, details, frames, covers, and grates.

1.03 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of cast-iron soil pipe and fitting, from manufacturer.

B. Field quality-control reports.

1.04 DELIVERY, STORAGE AND HANDLING

A. Do not store plastic cleanouts, pipe, and fittings in direct sunlight.

B. Protect pipe, pipe fittings, and seals from dirt and damage.

C. Handle cleanouts according to manufacturer's written rigging instructions.

D. Handle catch basins according to manufacturer's written rigging instructions.

1.05 PROJECT CONDITIONS

A. Interruption of Existing Storm Drainage Service: Do not interrupt service to adjacent facilities unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:

PART 2 - PRODUCTS

2.01 PVC PIPE AND FITTINGS

A. PVC Gravity Sewer Piping:

1. Pipe and Fittings: ASTM F 679, PVC gravity sewer pipe with bell-and-spigot ends and with integral ASTM F 477, elastomeric seals for gasketed joints.

2.02 NONPRESSURE TRANSITION COUPLINGS

A. Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground nonpressure piping. Include ends of same sizes as piping to be joined, and corrosion-resistant-metal tension band and tightening mechanism on each end.

B. Unshielded, Flexible Couplings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Fernco Inc.

b. Mission Rubber Company.

c. NDS Inc.

d. Or Equal.

2. Description: Elastomeric sleeve with stainless-steel shear ring and corrosion-resistant-metal tension band and tightening mechanism on each end.

C. Ring-Type, Flexible Couplings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Fernco Inc.

b. Logan Clay Pipe.

c. Mission Rubber Company.

d. Or Equal.

2. Description: Elastomeric compression seal with dimensions to fit inside bell of larger pipe and for spigot of smaller pipe to fit inside ring.

2.03 CLEANOUTS

A. Plastic Cleanouts:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. NDS Inc.

b. Sioux Chief Manufacturing Company, Inc.

c. Zurn Industries, LLC.

d. Or Equal.

2. Description: PVC body with PVC threaded plug. Include PVC drain pipe fitting and riser to cleanout of same material as drain piping.

2.04 DRAINS

A. Cast-Iron Area Drains:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Smith, Jay R. Mfg. Co.

b. Watts; a Watts Water Technologies company.

c. Zurn Industries, LLC.

d. Or Equal.

2. Description: ASME A112.6.3 gray-iron round body with anchor flange and round secured grate. Include bottom outlet with inside calk or spigot connection, of sizes indicated.

3. Top-Loading Classification(s): Medium and Heavy Duty.

2.05 CATCH BASINS

A. Standard Precast Concrete Catch Basins:

1. Materials and dimensions per City of Bakersfield standards.

2. Type of catch basin and additional dimensions as indicated on Drawings.

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 33 4613

FOUNDATION DRAINAGE PIPING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Foundation Drainage System.

1.02 INSTALLATION EXPECTATIONS

A. Filter Fabric: Install continuous length of filter fabric onto subgrade prior to placing drain rock and drain pipe.

1. Width shall be adequate to fully encircle drain rock and footing drain pipe, with edges overlapped 12-inches on top.

2. After drain rock is installed around the footing drain pipe, overlap the filter fabric 12-inches on top of the drain rock.

B. Drain Pipe: Lay piping continuously around entire perimeter of building foundation with pipe invert elevation matching bottom of adjacent footing; install fittings in accordance with manufacturer's instructions.

1. Do not create low spots or trap water in drainage piping; connect low spots to storm drain catch basin / manhole via tight line to permit water drainage.

2. Lay pipe with perforation holes facing down.

3. Connect perforated foundation drainage piping directly to storm drain catch basin / manhole with a dedicated tight line (solid pipe).

4. CAUTION: Take special care to prevent accidental interconnection of the foundation drainage system with roof drainage or storm drain lines.

C. Drain Rock: Install drain rock over and around footing drain pipe.

1.03 REFERENCES

A. References shall be the edition current as of the date of the Contract Documents.

B. American Society for Testing and Materials (ASTM):

1. ASTM D2729 – Standard Specification for Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

2. ASTM D4355 – Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus.

3. ASTM D4491 – Standard Test Methods for Water Permeability of Geotextiles by Permittivity.

4. ASTM D4533 – Standard Test Method for Trapezoid Tearing Strength of Geotextiles.

5. ASTM D4632 – Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.

6. ASTM D4751 – Standard Test Method for Determining Apparent Opening Size of a Geotextile.

7. ASTM D6241 – Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe.

1.04 SAFETY CONSIDERATIONS

A. The Contractor is solely responsible for developing a safety plan to protect workers and the public from injury or harm conforming to Local, State and Federal requirements and for executing and enforcing it on the Project site.

1. Contractor shall consult with their own Geotechnical Engineering expert for determining soil classification relative to safe sloping of soils.

2. Contractor shall determine safe excavation and dewatering methods, monitor excavations and earthwork operations for safety concerns and provide shoring and other protection as required to protect workers.

3. It is not the intent of the Construction Documents to dictate any unsafe construction means or methods; Contractor shall determine means and methods of construction conforming to their safety plan as required to construct work shown on the Contract Documents.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Polyvinyl Chloride Pipe (Footing Drain): ASTM D2729; solid type and perforated type with 1/2-inch diameter perforations in lower half of pipe, with lower quarter segment unperforated to facilitate water flow; plain end, 4-inch diameter; with required fittings.

B. Filter Fabric: Geotextile filter fabric suitable for filtering fine particulate and preventing them from entering the drain rock and footing drain. Fabric shall be nonwoven and meet the following requirements:

1. Property Requirements:

a. Apparent opening size of No. 30 maximum per ASTM D4751.

b. Water permittivity of 0.02 sec^{-1} minimum per ASTM D4491.

c. Grab tensile strength of 160 pound minimum, grab failure strain of ≥ 50 percent, and seam break strength of 140 pounds minimum per ASTM D4632.

d. Puncture resistance of 310 pounds minimum per ASTM D6241.

e. Tear strength of 50 pounds minimum per ASTM D4533.

f. Ultraviolet (UV) radiation stability of 50% strength retained minimum after 500 hours in xenon arc device per ASTM D4355.

C. Drain Rock: Clean washed drainage rock or gravel conforming to the following:

1. Property Requirements:

Sieve Size	Percent Passing
1-1/2-inch	99-100
1-inch	50-100
3/4-inch	0-20
3/8-inch	0-2
No. 200	0-1.5

PART 3 - EXECUTION – NOT USED

END OF SECTION