PROJECT MANUAL FOR

TEXAS STATE CEMETERY

CARETAKER'S COTTAGE - EXTERIOR REHABILITATION

PROJECT CEM 809-21-0010

OWNER:

STATE PRESERVATION BOARD

State Preservation Board

210 E 14TH ST, Suite 950

Austin, TX 7801

Architect/Engineer (A/E):

KOMATSU ARCHITECTURE

3880 Hulen Street, Suite 300
Fort Worth, Texas 76107
www.komatsu-inc.com

PAPE-DAWSON ENGINEERS

10801 N Mopac Expressway,
Building 3, Suite 200
Austin, Texas 78759
TBPE Firm Registration #470

November 30, 2020

PROJECT MANUAL

Definition: The compilation of Documents listed herein is hereinafter referred to as the Project Manual.

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Architect	**Project Manual / Civil Engineer**

00 21 00 – PRE-PROPOSAL MEETING

A MANDATORY Pre-Proposal Meeting to be held at the Texas State Cemetery.
Proposers will meet in the Administration Building of the Cemetery, physical address 909 Navasota Street, Austin TX 78702.
This Pre-Proposal will be an opportunity for all proposers to observe the workspace and existing conditions, and ask questions of the Owner and Architect.
The Pre-Proposal Meeting will be scheduled and described in the RFP documents. All attendees must sign the log at this walk-through.

END OF SECTION

PAYMENT BOND

STATE OF TEXAS
COUNTY OF _____

LET IT BE KNOWN BY THIS INSTRUMENT:

That we, _____ as principal

and we _____ a corporation duly authorized to do business in this State, as Surety(s), are this date held and firmly bound unto the State of Texas in the amount of _____

_____ Dollars $ _____

for payment of which indemnity the said Principal and Surety, by this declaration, do firmly bind themselves, their heirs, executors, administrators, successors and assigns, jointly and individually.

Since a Contract, which by reference is made a part hereof, exists between Principal and the State of Texas, acting by and through the State Preservation Board, and dated _____ for the _____

_____

_____

The conditions of this obligation are, therefore, such that it shall remain in full force and effect unless and until the Principal shall faithfully perform the Contract in accordance with the Contract Documents.

The liabilities, rights, limitations, and remedies concerning this Bond shall be determined in accordance with the provisions of Chapter 2253 of the Texas Government Code, amended by Acts of 73rd Legislature, 1993 pursuant to which Bond is executed.

IN WITNESS TO THIS DECLARATION, the said Principal and Surety(s) have signed and sealed this instrument

this _____ day of _____

PRINCIPAL

By _____

SURETY

By _____

Bond Identification No. _____

_____
Address of Attorney-In-Fact

_____
Telephone No. of Attorney-In-Fact

PERFORMANCE BOND

STATE OF TEXAS
COUNTY OF _____

LET IT BE KNOWN BY THIS INSTRUMENT:

That we, _____ as principal

and we _____ a corporation duly authorized to do business in this State, as Surety(s), are this date held and firmly bound unto the State of Texas in the amount of _____

_____ Dollars $ _____

for payment of which indemnity the said Principal and Surety, by this declaration, do firmly bind themselves, their heirs, executors, administrators, successors and assigns, jointly and individually.

Since a Contract, which by reference is made a part hereof, exists between Principal and the State of Texas, acting by and through the State Preservation Board, and dated _____ for the _____

_____

_____

The conditions of this obligation are, therefore, such that it shall remain in full force and effect unless and until the Principal shall faithfully perform the Contract in accordance with the Contract Documents.

In the event of Principal's failure, as defined by the Contract Documents, to faithfully perform the Contract, Surety(s) will within fifteen (15) days of determination of default, assume full responsibility for completion of said Contract and become entitled to payment of the balance of the Contract amount.

The liabilities, rights, limitations, and remedies concerning this Bond shall be determined in accordance with the provisions of Chapter 2253 of the Texas Government Code, amended by Acts of 73rd Legislature, 1993 pursuant to which Bond is executed.

IN WITNESS TO THIS DECLARATION, the said Principal and Surety(s) have signed and sealed this instrument

this _____ day of _____

PRINCIPAL

By _____

SURETY

By _____

Bond Identification No. _____

_____
Address of Attorney-In-Fact

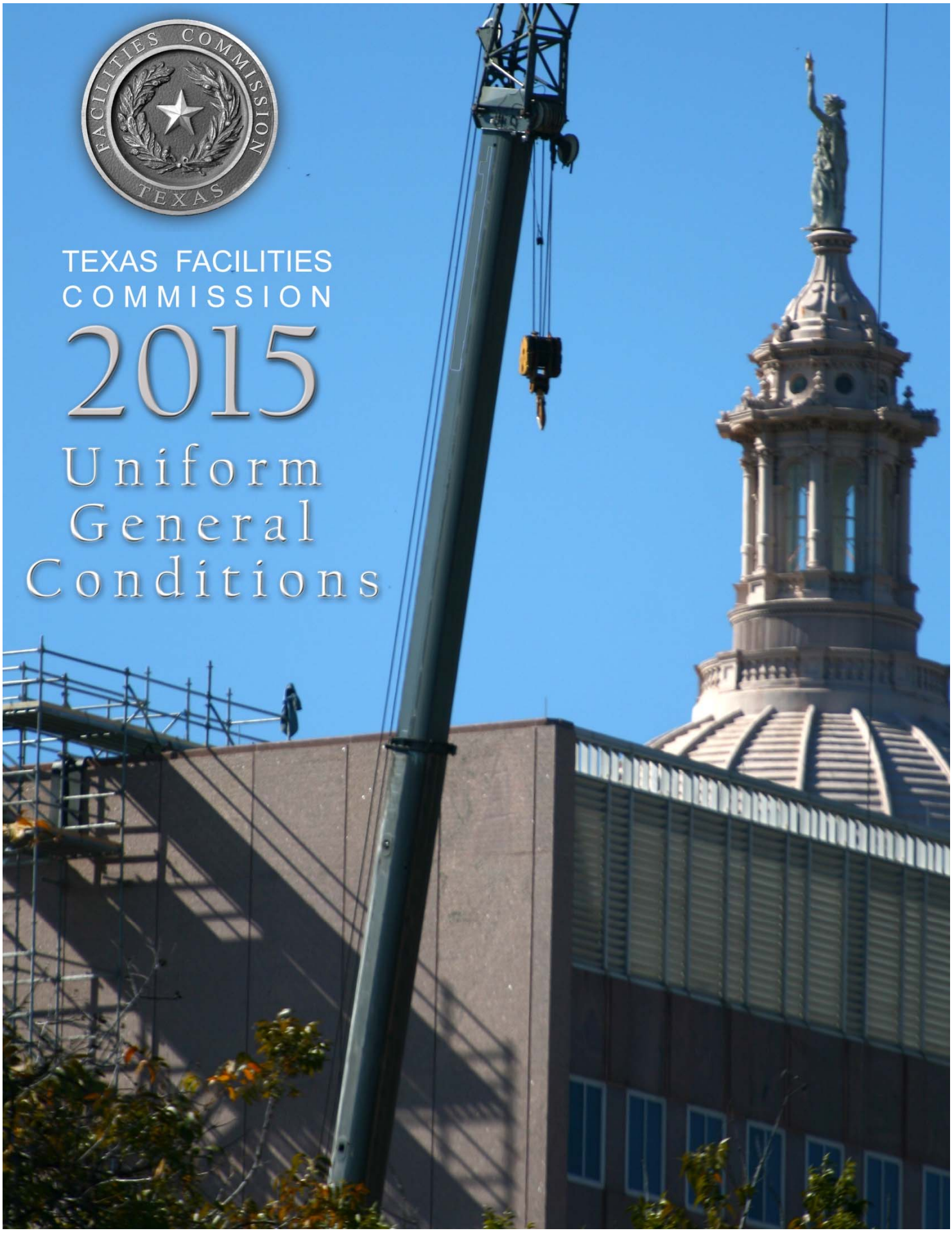
_____
Telephone No. of Attorney-In-Fact

00 72 00 – GENERAL CONDITIONS

The Texas Facilities Commission – Uniform General Conditions, 2015 are available online here:

- http://www.tfc.state.tx.us/divisions/facilities/prog/construct/formsindex/2015_UGC_09-16-15.pdf

END OF SECTION



TEXAS FACILITIES COMMISSION

2015 Uniform General Conditions

Uniform General Conditions
for
Construction Contracts

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Article 1. Definitions

Unless the context clearly requires another meaning, the following terms have the meaning assigned herein.

1.1 *Addendum/Addenda* means formally issued written or graphic modifications and/or interpretations of the Construction Documents that may add to, delete from, clarify or correct the description and/or scope of the Work. Addenda are issued during the bidding phase of the project.

1.2 *Application for Payment* means Contractor's monthly partial invoice for payment that includes any portion of the Work that has been completed for which an invoice has not been submitted and performed in accordance with the requirements of the Contract Documents. The Application for Payment accurately reflects the progress of the Work, is itemized based on the Schedule of Values, bears the notarized signature of Contractor, and shall not include subcontracted items for which Contractor does not intend to pay.

1.3 *Application for Final Payment* means Contractor's final invoice for payment that includes any portion of the Work that has been completed for which an invoice has not been submitted, amounts owing to adjustments to the final Contract Sum resulting from approved change orders, and release of remaining Contractor's retainage.

1.4 *Architect/Engineer (A/E)* means a person registered as an architect pursuant to Tex. Occ. Code Ann., Ch. 1051, as a landscape architect pursuant to Tex. Occ. Code Ann., Ch. 1052, a person licensed as a professional engineer pursuant Tex. Occ. Code Ann., Ch. 1001, and/or a firm employed by Owner or Design-Build Contractor to provide professional architectural or engineering services and to exercise overall responsibility for the design of a Project or a significant portion thereof, and to perform the contract administration responsibilities set forth in the Contract.

1.5 *Authority Having Jurisdiction* means a federal, state, local, or other regional department, or an individual such as a fire marshal, building official, electrical inspector, utility provider or other individual having statutory authority.

1.6 *Baseline Schedule* means the initial time schedule prepared by Contractor for Owner's information and acceptance that conveys Contractor's and Subcontractors' activities (including coordination and review activities required in the Contract Documents to be performed by A/E and ODR), durations, and sequence of work related to the entire Project to the extent required by the Contract Documents. The schedule clearly demonstrates the critical path of activities, durations and necessary predecessor conditions that drive the end date of the schedule. The Baseline Schedule shall not exceed the time limit current under the Contract Documents.

1.7 *Certificate of Final Completion* means the certificate issued by A/E that documents, to the best of A/E's knowledge and understanding, Contractor's completion of all

Contractor's Punchlist items and pre-final Punchlist items, final cleanup and Contractor's provision of Record Documents, operations and maintenance manuals, and all other closeout documents required by the Contract Documents.

1.8 *Certificate of Substantial Completion* means the certificate executed by the A/E, ODR and Contractor that documents to the best of A/E's and ODR's knowledge and understanding, Contractor's sufficient completion of the work in accordance with the Contract, so as to be operational and fit for the use intended.

1.9 *Change Order* means a written modification of the Contract between Owner and Contractor, signed by Owner, Contractor, and A/E.

1.10 *Close-out Documents* mean the product brochures, submittals, product/equipment maintenance and operations instructions, manuals, and other documents/warranties, record documents, affidavit of payment, release of lien and claim, and as may be further defined, identified, and required by the Contract Documents.

1.11 *Contract* means the entire agreement between Owner and Contractor, including all of the Contract Documents.

1.12 *Contract Date* is the date when the agreement between Owner and Contractor becomes effective.

1.13 *Contract Documents* mean those documents identified as a component of the agreement (Contract) between Owner and Contractor. These may include, but are not limited to, Drawings; Specifications; General, Supplementary General, and Special Conditions; and all pre-bid and/or pre-proposal addenda.

1.14 *Contract Sum* means the total compensation payable to Contractor for completion of the Work in accordance with the terms of the Contract.

1.15 *Contract Time* means the period between the start date identified in the Notice to Proceed with construction and the Substantial Completion date identified in the Notice to Proceed or as subsequently amended by a Change Order.

1.16 *Contractor* means the individual, corporation, limited liability company, partnership, firm, or other entity contracted to perform the Work, regardless of the type of construction contract used, so that the term as used herein includes a Construction Manager-at-Risk or a Design-Build firm as well as a general or prime Contractor. The Contract Documents refer to Contractor as if singular in number.

1.17 *Construction Documents* mean the Drawings, Specifications, and other documents issued to build the Project. Construction Documents become part of the Contract Documents when listed in the Contract or any Change Order.

1.18 *Construction Manager-at-Risk*, in accordance with Tex. Gov't Code, Ch. 2166, means a sole proprietorship, partnership, corporation, or other legal entity that assumes the risk for construction, rehabilitation, alteration, or repair of a facility at the

contracted price as a general contractor and provides consultation to Owner regarding construction during and after the design of the facility.

1.19 *Date of Commencement* means the date designated in the Notice to Proceed for Contractor to commence the Work.

1.20 *Day* means a calendar day unless otherwise specifically stipulated.

1.21 *Design-Build* means a project delivery method in which the detailed design and subsequent construction is provided through a single contract with a Design-Build firm; a team, partnership, or legal entity that includes design professionals and a builder. The Design-Build Project delivery shall be implemented in accordance with Tex. Gov't Code § 2166.2531.

1.22 *Drawings* mean that product of A/E which graphically depicts the Work.

1.23 *Final Completion* means the date determined and certified by A/E and Owner on which the Work is fully and satisfactorily complete in accordance with the Contract.

1.24 *Final Payment* means the last and final monetary compensation made to Contractor for any portion of the Work that has been completed and accepted for which payment has not been made, amounts owing to adjustments to the final Contract Sum resulting from approved change orders, and release of Contractor's retainage.

1.25 *Historically Underutilized Business (HUB)* pursuant to Tex. Gov't Code, Ch. 2161, means a business that is at least 51% owned by an Asian Pacific American, a Black American, a Hispanic American, a Native American and/or an American Woman; is an entity with its principal place of business in Texas; and has an owner residing in Texas with proportionate interest that actively participates in the control, operations, and management of the entity's affairs.

1.26 *Notice to Proceed* means written document informing Contractor of the dates beginning Work and the dates anticipated for Substantial Completion.

1.27 *Open Item List* means a list of work activities, Punchlist items, changes or other issues that are not expected by Owner and Contractor to be complete prior to Substantial Completion.

1.28 *Owner* means the State of Texas, and any agency of the State of Texas, acting through the responsible entity of the State of Texas identified in the Contract as Owner.

1.29 *Owner's Designated Representative (ODR)* means the individual assigned by Owner to act on its behalf and to undertake certain activities as specifically outlined in the Contract. ODR is the only party authorized to direct changes to the scope, cost, or time of the Contract.

1.30 *Project* means all activities necessary for realization of the Work. This includes design, contract award(s), execution of the Work itself, and fulfillment of all Contract and warranty obligations.

1.31 *Progress Assessment Report (PAR)* means the monthly compliance report to Owner verifying compliance with the HUB subcontracting plan (HSP).

1.32 *Proposed Change Order (PCO)* means a document that informs Contractor of a proposed change in the Work and appropriately describes or otherwise documents such change including Contractor's response of pricing for the proposed change.

1.33 *Punchlist* means a list of items of Work to be completed or corrected by Contractor after Substantial Completion. Punchlists indicate items to be finished, remaining Work to be performed, or Work that does not meet quality or quantity requirements as required in the Contract Documents.

1.34 *Record Documents* mean the drawing set, Specifications, and other materials maintained by Contractor that documents all addenda, Architect's Supplemental Instructions, Change Orders and postings and markings that record the as-constructed conditions of the Work and all changes made during construction.

1.35 *Request for Information (RFI)* means a written request by Contractor directed to A/E or ODR for a clarification of the information provided in the Contract Documents or for direction concerning information necessary to perform the Work that may be omitted from the Contract Documents.

1.36 *Samples* mean representative physical examples of materials, equipment, or workmanship used to confirm compliance with requirements and/or to establish standards for use in execution of the Work.

1.37 *Schedule of Values* means the detailed breakdown of the cost of the materials, labor, and equipment necessary to accomplish the Work as described in the Contract Documents, submitted by Contractor for approval by Owner and A/E.

1.38 *Shop Drawings* mean the drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data prepared by Contractor or its agents which detail a portion of the Work.

1.39 *Site* means the geographical area of the location of the Work.

1.40 *Special Conditions* mean the documents containing terms and conditions which may be unique to the Project. Special Conditions are a part of the Contract Documents and have precedence over the Uniform General Conditions and Supplementary General Conditions.

1.41 *Specifications* mean the written product of A/E that establishes the quality and/or performance of products utilized in the Work and processes to be used, including testing and verification for producing the Work.

1.42 *Subcontractor* means a business entity that enters into an agreement with Contractor to perform part of the Work or to provide services, materials, or equipment for use in the Work.

1.43 *Submittal Register* means a list provided by Contractor of all items to be furnished for review and approval by A/E and Owner and as identified in the Contract Documents including anticipated sequence and submittal dates.

1.44 *Substantial Completion* means the date determined and certified by Contractor, A/E, and Owner when the Work, or a designated portion thereof, is sufficiently complete, in accordance with the Contract, so as to be operational and fit for the use intended.

1.45 *Supplementary General Conditions* mean procedures and requirements that modify the Uniform General Conditions. Supplementary General Conditions, when used, have precedence over the Uniform General Conditions.

1.46 *Unit Price Work* means the Work, or a portion of the Work, paid for based on incremental units of measurement.

1.47 *Unilateral Change Order (ULCO)* means a Change Order issued by Owner without the complete agreement of Contractor, as to cost and/or time.

1.48 *Work* means the administration, procurement, materials, equipment, construction and all services necessary for Contractor, and/or its agents, to fulfill Contractor's obligations under the Contract.

1.49 *Work Progress Schedule* means the continually updated time schedule prepared and monitored by Contractor that accurately indicates all necessary appropriate revisions as required by the conditions of the Work and the Project while maintaining a concise comparison to the Baseline Schedule.

Article 2. Wage Rates and Other Laws Governing Construction

2.1 Environmental Regulations. Contractor shall conduct activities in compliance with applicable laws and regulations and other requirements of the Contract relating to the environment and its protection at all times. Unless otherwise specifically determined, Owner is responsible for obtaining and maintaining permits related to stormwater run-off. Contractor shall conduct operations consistent with stormwater run-off permit conditions. Contractor is responsible for all items it brings to the Site, including hazardous materials, and all such items brought to the Site by its Subcontractors and suppliers, or by other entities subject to direction of Contractor. Contractor shall not incorporate hazardous materials into the Work without prior approval of Owner, and shall provide an affidavit attesting to such in association with request for Substantial Completion inspection.

2.2 Wage Rates. Contractor shall not pay less than the wage scale of the various classes of labor as shown on the prevailing wage schedule provided by Owner in the bid or proposal specifications. The specified wage rates are minimum rates only. Owner is

not bound to pay any claims for additional compensation made by any Contractor because the Contractor pays wages in excess of the applicable minimum rate contained in the Contract. The prevailing wage schedule is not a representation that qualified labor adequate to perform the Work is available locally at the prevailing wage rates.

2.2.1 Notification to Workers. Contractor shall post the prevailing wage schedule in a place conspicuous to all workers on the Project Site When requested by Owner, Contractor shall furnish evidence of compliance with the Texas Prevailing Wage Law and the addresses of all workers.

2.2.1.1 Pursuant to Tex. Gov't Code § 2258.024, Contractor shall keep, on site, true and accurate records showing the name and occupation of each worker employed by the Contractor or subcontractors and the actual per diem wages paid to each worker. The record shall be open to inspection by the ODR and their agents at all reasonable hours for the duration of the contract.

2.2.1.2 With each application for progress payment, Contractor shall make available upon request certified payroll records, including from subcontractors of any tier level, on Form WH-347 as promulgated by the U.S. Department of Labor, as may be revised from time to time and in unlocked and unprotected Excel format, along with copies of any and all Contract Documents between Contractor and any Subcontractors. Pursuant to Tex. Penal Code §§ 37.02 and 37.10, Employees of Contractor and subcontractors, including all tier levels, shall be subject to prosecution for submitting certified payroll records that contain materially false information.

2.2.1.3 The prevailing wage schedule is determined by Owner in compliance with Tex. Gov't Code, Ch. 2258. Should Contractor at any time become aware that a particular skill or trade not reflected on Owner's prevailing wage schedule will be or is being employed in the Work, whether by Contractor or by Subcontractor, Contractor shall promptly inform ODR of the proposed wage to be paid for the skill along with a justification for same and ODR shall promptly concur with or reject the proposed wage and classification.

2.2.1.4 Contractor is responsible for determining the most appropriate wage for a particular skill in relation to similar skills or trades identified on the prevailing wage schedule. In no case, shall any worker be paid less than the wage indicated for laborers.

2.2.1.5 Pursuant to Tex. Labor Code § 214.008, Misclassification of Workers; Penalty. The Owner requires Contractor and all subcontractors properly classify individuals as Employees or Independent Contractors.

2.2.2 Penalty for Violation. Contractor, and any Subcontractor, will pay to the State a penalty of sixty dollars ($60) for each worker employed for each day, or portion thereof, that the worker is paid less than the wage rates stipulated in the prevailing wage schedule

2.2.3 Complaints of Violations.

2.2.3.1 Owner's Determination of Good Cause. Upon receipt of information concerning a violation, Owner will conduct an investigation in accordance with Tex. Gov't Code, Ch. 2258 and make an initial determination as to whether good cause exists that a violation occurred. Upon making a good cause finding, Owner will retain the full amounts claimed by the claimant or claimants as the difference between wages paid and wages due under the prevailing wage schedule and any supplements thereto, together with the applicable penalties in accordance with Tex. Gov't Code § 2258.023, such amounts being subtracted from successive progress payments pending a final decision on the violation.

2.2.3.2 No Extension of Time. If Owner's determination proves valid that good cause existed to believe a violation had occurred, Contractor is not entitled to an extension of time for any delay arising directly or indirectly from the arbitration procedures.

2.2.3.3 Cooperation with Owner's Investigation. Contractor shall cooperate with Owner during any investigations hereunder. Such cooperation shall include, but not necessarily be limited to, timely providing the information and/or documentation requested by Owner, which may include certified payroll records on Form WH-347 as promulgated by the U.S. Department of Labor, as may be revised from time to time and in unlocked and unprotected Excel format; and copies of any and all Contract Documents between Contractor and any Subcontractors.

2.2.3.4 Notification to Owner. In the event Contractor or Subcontractor elect to appeal an initial determination made pursuant to Paragraph 2.2.3.1, the Contractor and/or Subcontractor, as applicable, shall deliver notice thereof to Owner.

2.3 Venue for Suits. The venue for any suit arising from the Contract will be in a court of competent jurisdiction in Travis County, Texas, or as may otherwise be designated in the Supplementary General Conditions.

2.4 Licensing of Trades. Contractor shall comply with all applicable provisions of State law related to license requirements for skilled tradesmen, contractors, suppliers and or laborers, as necessary to accomplish the Work. In the event Contractor, or one of its Subcontractors, loses its license during the term of performance of the Contract, Contractor shall promptly hire or contract with a licensed provider of the service at no additional cost to Owner.

2.5 Royalties, Patents, and Copyrights. Contractor shall pay all royalties and license fees, defend suits or claims for infringement of copyrights and patent rights, and shall hold Owner harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by Owner or A/E. However, if Contractor has reason to believe that the required design, process, or product is an infringement of a copyright or a patent, Contractor shall be responsible for such loss unless such information is promptly furnished to A/E.

2.6 State Sales and Use Taxes. Owner qualifies for exemption from certain State and local sales and use taxes pursuant to the provisions of Tex. Tax Code, Ch. 151. Upon request from Contractor, Owner shall furnish evidence of tax exempt status. Contractor may claim exemption from payment of certain applicable State taxes by complying with such procedures as prescribed by the State Comptroller of Public Accounts. Owner acknowledges not all items qualify for exemption. Owner is not obligated to reimburse Contractor for taxes paid on items that qualify for tax exemption.

Article 3. General Responsibilities of Owner and Contractor

3.1 Owner's General Responsibilities. Owner is the entity identified as such in the Contract and referred to throughout the Contract Documents as if singular in number.

3.1.1 Preconstruction Conference. Prior to, or concurrent with, the issuance of Notice to Proceed with construction, a conference will be convened for attendance by Owner, Contractor, A/E and appropriate Subcontractors. The purpose of the conference is to establish a working understanding among the parties as to the Work, the operational conditions at the Project Site, and general administration of the Project. Topics include communications, schedules, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, maintaining required records and all other matters of importance to the administration of the Project and effective communications between the Project team members.

3.1.2 Owner's Designated Representative. Prior to the start of construction, Owner will identify Owner's Designated Representative (ODR), who has the express authority to act and bind Owner to the extent and for the purposes described in the various Articles of the Contract, including responsibilities for general administration of the Contract.

3.1.2.1 Unless otherwise specifically defined elsewhere in the Contract Documents, ODR is the single point of contact between Owner and Contractor. Notice to ODR, unless otherwise noted, constitutes notice to Owner under the Contract.

3.1.2.2 All directives on behalf of Owner will be conveyed to Contractor and A/E by ODR in writing.

3.1.2.3 Owner will furnish or cause to be furnished, free of charge, the number of complete sets of the Drawings, Specifications, and addenda as provided in the Supplementary General Conditions or Special Conditions.

3.1.2.4 The ODR will establish the protocol for planning, scheduling and documenting progress meetings with provisions for absence of various project team members that have a key role in these duties.

3.1.3 Owner Supplied Materials and Information.

3.1.3.1 Owner will furnish to Contractor those surveys describing the physical characteristics, legal description, limitations of the Site, Site utility locations, and other information used in the preparation of the Contract Documents.

3.1.3.2 Owner will provide information, equipment, or services under Owner's control to Contractor with reasonable promptness.

3.1.4 Availability of Lands. Owner will furnish, as indicated in the Contract, all required rights to use the lands upon which the Work occurs. This includes rights-of-way and easements for access and such other lands that are designated for use by Contractor. Contractor shall comply with all Owner identified encumbrances or restrictions specifically related to use of lands so furnished. Owner will obtain and pay for easements for permanent structures or permanent changes in existing facilities,

3.1.5 Limitation on Owner's Duties.

3.1.5.1 Owner will not supervise, direct, control or have authority over or be responsible for Contractor's means, methods, technologies, sequences or procedures of construction or the safety precautions and programs incident thereto. Owner is not responsible for any failure of Contractor to comply with laws and regulations applicable to the Work. Owner is not responsible for the failure of Contractor to perform or furnish the Work in accordance with the Contract Documents. Except as provided in Section 2.5, Owner is not responsible for the acts or omissions of Contractor, or any of its Subcontractors, suppliers or of any other person or organization performing or furnishing any of the Work on behalf of Contractor.

3.1.5.2 Owner will not take any action in contravention of a design decision made by A/E in preparation of the Contract Documents, when such actions are in conflict with statutes under which A/E is licensed for the protection of the public health and safety.

3.2 Role of Architect/Engineer. Unless specified otherwise in the Contract between Owner and Contractor, A/E shall provide general administration services for Owner during the construction phase of the project. Written correspondence, requests for information, and Shop Drawings/submittals shall be directed to A/E for action. A/E has the authority to act on behalf of Owner to the extent provided in the Contract Documents, unless otherwise modified by written instrument, which will be furnished to Contractor by ODR, upon request.

3.2.1 Site Visits.

3.2.1.1 A/E will make visits to the Site at intervals as provided in the A/E's Contract with Owner, to observe the progress and the quality of the various aspects of Contractor's executed Work and report findings to Owner.

3.2.1.2 A/E has the authority to interpret Contract Documents and inspect the Work for compliance and conformance with the Contract. Except as referenced in Paragraph 3.1.5.2, Owner retains the sole authority to accept or reject Work and issue direction for correction, removal, or replacement of Work.

3.2.2 Clarifications and Interpretations. It may be determined that clarifications or interpretations of the Contract Documents are necessary. Upon direction by ODR, such clarifications or interpretations will be provided by A/E consistent with the intent of the Contract Documents. A/E will issue these clarifications with reasonable promptness to Contractor as A/E's supplemental instruction ("ASI") or similar instrument. If Contractor believes that such clarification or interpretation justifies an adjustment in the Contract Sum or the Contract Time, Contractor shall so notify Owner in accordance with the provisions of Article 11.

3.2.3 Limitations on Architect/Engineer Authority. A/E is not responsible for:

3.2.3.1 Contractor's means, methods, techniques, sequences, procedures, safety, or programs incident to the Project, nor will A/E supervise, direct, control or have authority over the same;

3.2.3.2 The failure of Contractor to comply with laws and regulations applicable to the furnishing or performing the Work;

3.2.3.3 Contractor's failure to perform or furnish the Work in accordance with the Contract Documents; or

3.2.3.4 Acts or omissions of Contractor, or of any other person or organization performing or furnishing any of the Work.

3.3 Contractor's General Responsibilities. Contractor is solely responsible for implementing the Work in full compliance with all applicable laws and the Contract Documents and shall supervise and direct the Work using the best skill and attention

to assure that each element of the Work conforms to the Contract requirements. Contractor is solely responsible for all construction means, methods, techniques, safety, sequences, coordination, procedures and protection of the installed work as part of the contract until substantial completion of the project. Contractor remains responsible for the care and protection of materials and Work in the areas where punch list items are completed until Final Completion.

3.3.1 Project Administration. Contractor shall provide Project administration for all Subcontractors, vendors, suppliers, and others involved in implementing the Work and shall coordinate administration efforts with those of A/E and ODR in accordance with these general conditions and other provisions of the Contract, and as outlined in the preconstruction conference. Contractor's Project Administration includes periodic daily reporting on weather, work progress, labor, materials, equipment, obstructions to prosecution of the work, accidents and injuries in accordance with the Contract and transmitted no less frequently than on a weekly basis.

3.3.2 Contractor's Management Personnel. Contractor shall employ a competent person or persons who will be present at the Project Site during the progress of the Work to supervise or oversee the work. The competent persons are subject to the approval of ODR. Contractor shall not change approved staff during the course of the project without the written approval of ODR unless the staff member leaves the employment of Contractor. Contractor shall provide additional quality control, safety and other staff as stated in the Supplementary General Conditions.

3.3.3 Labor. Contractor shall provide competent, suitably qualified personnel to survey, lay-out, and construct the Work as required by the Contract Documents and maintain good discipline and order at the Site at all times.

3.3.4 Services, Materials, and Equipment. Unless otherwise specified, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities, incidentals, and services necessary for the construction, performance, testing, start-up, inspection and completion of the Work.

3.3.5 Contractor General Responsibility. For Owner furnished equipment or material that will be in the care, custody, and control of Contractor, Contractor is responsible for damage or loss. Owner shall deliver to Contractor a complete list and respective values of such materials or equipment and make an equitable adjustment to the contract amount for any increase in cost of Builder's Risk insurance.

3.3.6 Non-Compliant Work. Should A/E and/or ODR identify Work as non-compliant with the Contract Documents, A/E and/or ODR shall communicate the finding to Contractor, and Contractor shall correct such Work at no additional cost to the Owner. The approval of Work by either A/E or

ODR does not relieve Contractor from the obligation to comply with all requirements of the Contract Documents.

3.3.7 Subcontractors. Contractor shall not employ any Subcontractor, supplier or other person or organization, whether initially or as a substitute, against whom Owner shall have reasonable objection. Owner will communicate such objections in writing within ten (10) days of receipt of Contractor's intent to use such Subcontractor, supplier, or other person or organization. Contractor is not required to employ any Subcontractor, supplier or other person or organization to furnish any of the work to whom Contractor has reasonable objection. Contractor shall not substitute Subcontractors without the acceptance of Owner. Pursuant to Tex. Gov't Code § 2269.256(b), if the Contractor reviews, evaluates and recommends that the Owner accept a bid or proposal from a Subcontractor but the Owner requires another bid or proposal to be accepted, Owner shall compensate the Contractor by a change in price, time or guaranteed maximum cost for any additional cost or risk the Contractor will incur because of Owner's requirement to select another bid or proposal rather than the one recommended.

3.3.7.1 All Subcontracts and supply contracts shall be consistent with and bind the Subcontractors and suppliers to the terms and conditions of the Contract Documents including provisions of the Contract between Contractor and Owner.

3.3.7.2 Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with Contractor. Require all Subcontractors, suppliers and such other persons and organizations performing or furnishing any of the Work to communicate with Owner only through Contractor. Contractor shall furnish to Owner a copy, at Owner's request, of each first-tier subcontract promptly after its execution. Contractor agrees that Owner has no obligation to review or approve the content of such contracts and that providing Owner such copies in no way relieves Contractor of any of the terms and conditions of the Contract, including, without limitation, any provisions of the Contract which require the Subcontractor to be bound to Contractor in the same manner in which Contractor is bound to Owner.

3.3.8 Continuing the Work. Contractor shall carry on the Work and adhere to the progress schedule during all disputes, disagreements, or alternative resolution processes with Owner. Contractor shall not delay or postpone any Work because of pending unresolved disputes, disagreements or alternative resolution processes, except as Owner and Contractor may agree in writing.

3.3.9 Cleaning. Contractor shall at all times, keep the Site and the Work clean and free from accumulation of waste materials or rubbish caused by the construction activities under the Contract. Contractor shall ensure that the entire Project is thoroughly cleaned prior to requesting Substantial Completion inspection and, again, upon completion of the Project prior to the final inspection.

3.3.10 Acts and Omissions of Contractor, its Subcontractors, and Employees. Contractor shall be responsible for acts and omissions of his employees and all its Subcontractors, their agents and employees. Owner may, in writing, require Contractor to remove from the Project any of Contractor's or its Subcontractor's employees whom ODR finds to be careless, incompetent, unsafe, uncooperative, disruptive, or otherwise objectionable.

3.3.11 Acts or Omissions. Contractor shall indemnify and hold harmless the State of Texas and Customers, AND/OR THEIR OFFICERS, AGENTS, EMPLOYEES, REPRESENTATIVES, CONTRACTORS, ASSIGNEES, AND/OR DESIGNEES FROM ANY AND ALL LIABILITY, ACTIONS, CLAIMS, DEMANDS, OR SUITS, AND ALL RELATED COSTS, ATTORNEY FEES, AND EXPENSES arising out of, or resulting from any acts or omissions of Contractor or its agents, employees, subcontractors, Order Fulfillers, or suppliers of subcontractors in the execution or performance of the Contract and any Purchase Orders issued under the Contract. THE DEFENSE SHALL BE COORDINATED BY CONTRACTOR WITH THE OFFICE OF THE ATTORNEY GENERAL WHEN TEXAS STATE AGENCIES ARE NAMED DEFENDANTS IN ANY LAWSUIT AND CONTRACTOR MAY NOT AGREE TO ANY SETTLEMENT WITHOUT FIRST OBTAINING THE CONCURRENCE FROM THE OFFICE OF THE ATTORNEY GENERAL. CONTRACTOR AND OWNER AGREE TO FURNISH TIMELY WRITTEN NOTICE TO EACH OTHER OF ANY SUCH CLAIM.

3.3.12 Infringements.

3.3.12.1 Contractor shall indemnify and hold harmless the State of Texas and Customers, AND/OR THEIR EMPLOYEES, AGENTS, REPRESENTATIVES, CONTRACTORS, ASSIGNEES, AND/OR DESIGNEES from any and all third party claims involving infringement of United States patents, copyrights, trade and service marks, and any other intellectual or intangible property rights in connection with the PERFORMANCES OR ACTIONS OF CONTRACTOR PURSUANT TO THIS CONTRACT. CONTRACTOR AND THE CUSTOMER AGREE TO FURNISH TIMELY WRITTEN NOTICE TO EACH OTHER OF ANY SUCH CLAIM. CONTRACTOR SHALL BE LIABLE TO PAY ALL COSTS OF DEFENSE INCLUDING ATTORNEYS' FEES. THE DEFENSE SHALL BE COORDINATED BY CONTRACTOR WITH THE OFFICE OF THE ATTORNEY GENERAL WHEN TEXAS STATE AGENCIES ARE NAMED DEFENDANTS IN

ANY LAWSUIT AND CONTRACTOR MAY NOT AGREE TO ANY SETTLEMENT WITHOUT FIRST OBTAINING THE CONCURRENCE FROM THE OFFICE OF THE ATTORNEY GENERAL.

3.3.12.2 Contractor shall have no liability under this section if the alleged infringement is caused in whole or in part by: (i) use of the product or service for a purpose or in a manner for which the product or service was not designed, (ii) any modification made to the product without Contractor's written approval, (iii) any modifications made to the product by Contractor pursuant to Customer's specific instructions, (iv) any intellectual property right owned by or licensed to Customer, or (v) any use of the product or service by Customer that is not in conformity with the terms of any applicable license agreement.

3.3.12.3 If Contractor becomes aware of an actual or potential claim, or Customer provides Contractor with notice of an actual or potential claim, Contractor may (or in the case of an injunction against Customer, shall), at Contractor's sole option and expense; (i) procure for the Customer the right to continue to use the affected portion of the product or service, or (ii) modify or replace the affected portion of the product or service with functionally equivalent or superior product or service so that Customer's use is non-infringing.

3.3.12.4 Taxes/Workers' Compensation/Unemployment Insurance–Including Indemnity.

3.3.12.4.1 CONTRACTOR AGREES AND ACKNOWLEDGES THAT DURING THE EXISTENCE OF THIS CONTRACT, CONTRACTOR SHALL BE ENTIRELY RESPONSIBLE FOR THE LIABILITY AND PAYMENT OF CONTRACTOR'S AND CONTRACTOR'S EMPLOYEES' TAXES OF WHATEVER KIND, ARISING OUT OF THE PERFORMANCES IN THIS CONTRACT. CONTRACTOR AGREES TO COMPLY WITH ALL STATE AND FEDERAL LAWS APPLICABLE TO ANY SUCH PERSONS, INCLUDING LAWS REGARDING WAGES, TAXES, INSURANCE, AND WORKERS' COMPENSATION. THE CUSTOMER AND/OR THE STATE SHALL NOT BE LIABLE TO CONTRACTOR, ITS EMPLOYEES, AGENTS, OR OTHERS FOR THE PAYMENT OF TAXES OR THE PROVISION OF UNEMPLOYMENT INSURANCE AND/OR WORKERS' COMPENSATION OR ANY BENEFIT

AVAILABLE TO A STATE EMPLOYEE OR EMPLOYEE OF ANOTHER GOVERNMENTAL ENTITY CUSTOMER.

3.3.12.4.1 CONTRACTOR AGREES TO INDEMNIFY AND HOLD HARMLESS OWNER, THE STATE OF TEXAS AND/OR THEIR EMPLOYEES, AGENTS, REPRESENTATIVES, CONTRACTORS, AND/OR ASSIGNEES FROM ANY AND ALL LIABILITY, ACTIONS, CLAIMS, DEMANDS, OR SUITS, AND ALL RELATED COSTS, ATTORNEYS' FEES, AND EXPENSES, RELATING TO TAX LIABILITY, UNEMPLOYMENT INSURANCE AND/OR WORKERS' COMPENSATION IN ITS PERFORMANCE UNDER THIS CONTRACT. CONTRACTOR SHALL BE LIABLE TO PAY ALL COSTS OF DEFENSE INCLUDING ATTORNEYS' FEES. THE DEFENSE SHALL BE COORDINATED BY CONTRACTOR WITH THE OFFICE OF THE ATTORNEY GENERAL WHEN TEXAS STATE AGENCIES ARE NAMED DEFENDANTS IN ANY LAWSUIT AND VENDOR MAY NOT AGREE TO ANY SETTLEMENT WITHOUT FIRST OBTAINING THE CONCURRENCE FROM THE OFFICE OF THE ATTORNEY GENERAL. CONTRACTOR AND OWNER AGREE TO FURNISH TIMELY WRITTEN NOTICE TO EACH OTHER OF ANY SUCH CLAIM.

3.3.12.5 The provisions of this indemnification are solely for the benefit of the parties hereto and not intended to create or grant any rights, contractual or otherwise, to any other person or entity.

3.3.12.6 Contractor shall promptly advise Owner in writing of any claim or demand against Owner or against Contractor which involves Owner and known to Contractor and related to or arising out of Contractor's activities under this Contract.

3.3.13 Ancillary Areas. Operate and maintain operations and associated storage areas at the site of the Work in accordance with the following:

3.3.13.1 Confine all Contractor operations, including storage of materials and employee parking upon the Site of Work, to areas designated by Owner.

3.3.13.2 Contractor may erect, at its own expense, temporary buildings that will remain its property. Remove such buildings and associated utility service lines upon completion of the Work, unless Contractor requests and Owner provides written consent that it may abandon such buildings and utilities in place.

3.3.13.3 Use only established roadways or construct and use such temporary roadways as may be authorized by Owner. Do not allow load limits of vehicles to exceed the limits prescribed by appropriate regulations or law. Provide protection to road surfaces, curbs, sidewalks, trees, shrubbery, sprinkler systems, drainage structures and other like existing improvements to prevent damage and repair any damage thereto at the expense of Contractor.

3.3.13.4 Owner may restrict Contractor's entry to the Site to specifically assigned entrances and routes.

3.3.14 Separate Contracts. Owner reserves the right to award other contracts in connection with other portions of the Project under these same or substantially similar contract conditions, including those portions related to insurance and waiver of subrogation. Owner reserves the right to perform operations related to the Project with Owner's own forces.

3.3.15 Under a system of separate contracts, the conditions described herein continue to apply except as may be amended by change order.

3.3.16 Contractor shall cooperate with other contractors or forces employed on the Project by Owner, including providing access to Site and Project information as requested.

3.3.17 Owner shall be reimbursed by Contractor for costs incurred by Owner which are payable to a separate contractor because of delays, improperly timed activities, or defective construction by Contractor. Owner will equitably adjust the Contract by Change Order for costs incurred by Contractor because of delays, improperly timed activities, damage to the Work or defective construction by a separate contractor.

Article 4. Historically Underutilized Business (HUB) Subcontracting Plan

4.1 General Description. The purpose of the Historically Underutilized Business (HUB) program is to promote equal business opportunities for economically disadvantaged persons (as defined by Tex. Gov't Code, Ch. 2161) to contract with the State of Texas in accordance with the goals specified in the State of Texas Disparity Study. The HUB program annual procurement utilization goals are defined in 34 T.A.C. § 20.13(b).

4.1.1 State agencies are required by statute to make a good faith effort to assist HUBs in participating in contract awards issued by the State. 34 T.A.C. §

20.13(b) outlines the State's policy to encourage the utilization of HUBs in State contracting opportunities through race, ethnic and gender neutral means.

4.1.2 A Contractor who contracts with the State in an amount of $100,000 or greater is required to make a good faith effort to award subcontracts to HUBs in accordance with 34 T.A.C. § 20.14(a)(2)(A) by submitting a HUB subcontracting plan within twenty-four (24) hours after the bid or response is due and complying with the HUB subcontracting plan after it is accepted by Owner and during the term of the Contract.

4.2 Compliance with Approved HUB Subcontracting Plan. Contractor, having been awarded this Contract in part by complying with the HUB program statute and rules, hereby covenants to continue to comply with the HUB program as follows:

4.2.1 Prior to adding or substituting a Subcontractor, promptly notify Owner in the event a change is required for any reason to the accepted HUB subcontracting plan.

4.2.2 Conduct the good-faith effort activities required and provide Owner with necessary documentation to justify approval of a change to the approved HUB subcontracting plan.

4.2.3 Cooperate in the execution of a Change Order or such other approval of the change in the HUB subcontracting plans as Contractor and Owner may agree to.

4.2.4 Maintain and make available to Owner upon request business records documenting compliance with the accepted HUB subcontracting plan.

4.2.5 Upon receipt of payment for performance of Work, submit to Owner a compliance report, in the format required by Owner that demonstrates Contractor's performance of the HUB subcontracting plan.

4.2.5.1 Progress Assessment Report (PAR): monthly compliance reports to Owner (contracting agency), verifying their compliance with the HUB subcontracting plan, including the use/expenditures they have made to Subcontractors. (The PAR is available in the Index Forms Library on the Facilities Design & Construction page of the Texas Facilities Commission website.

4.2.6 Promptly and accurately explain and provide supplemental information to Owner to assist in Owner's investigation of Contractor's good-faith effort to fulfill the HUB subcontracting plan and the requirements under 34 T.A.C. § 20.14(a)(1).

4.3 Failure to Demonstrate Good-Faith Effort. Upon a determination by Owner that Contractor has failed to demonstrate a good-faith effort to fulfill the HUB subcontracting plan or any Contract covenant detailed above, Owner may, in addition to all other remedies available to it, report the failure to perform to the Comptroller of

Public Accounts, Texas Procurement and Support Services Division, Historically Underutilized Business Program and may bar Contractor from future contracting opportunities with Owner.

Article 5. Bonds and Insurance

5.1 Construction Bonds. Contractor is required to tender to Owner, prior to commencing the Work, performance and payment bonds, as required by Tex. Gov't Code, Ch. 2253. On Construction Manager-at-Risk and Design-Build Projects the Owner shall require a security bond, as described in Subsection 5.1.2 below.

5.1.1 Bond Requirements. Each bond shall be executed by a corporate surety or sureties authorized to do business in the State of Texas and acceptable to Owner, on Owner's form, and in compliance with the relevant provisions of the Texas Insurance Code. If any bond is for more than ten (10) percent of the surety's capital and surplus, Owner may require certification that the company has reinsured the excess portion with one or more reinsurers authorized to do business in the State. A reinsurer may not reinsure for more than ten (10) percent of its capital and surplus. If a surety upon a bond loses its authority to do business in the State, Contractor shall, within thirty (30) days after such loss, furnish a replacement bond at no added cost to Owner.

5.1.1.1 A Performance bond is required if the Contract Sum is in excess of $100,000. The performance bond is solely for the protection of Owner. The performance bond is to be for the Contract Sum to guarantee the faithful performance of the Work in accordance with the Contract Documents. The form of the bond shall be approved by the Office of the Attorney General of Texas. The performance bond shall be effective through Contractor's warranty period.

5.1.1.2 A Payment bond is required if the Contract price is in excess of $25,000. The payment bond is to be for the Contract Sum and is payable to Owner solely for the protection and use of payment bond beneficiaries. The form of the bond shall be approved by the Office of the Attorney General of Texas.

5.1.2 Security Bond. The security bond provides protection to Owner if Contractor presents an acceptable guaranteed maximum price ("GMP") to Owner and 1) fails to execute the GMP; or 2) fails to deliver the required payment and performance bonds within the time period stated below.

5.1.3 When Bonds Are Due.

5.1.3.1 Security bonds are due within ten (10) days of signing a Construction Manager-at-Risk or Design-Build Contract.

5.1.3.2 Payment and performance bonds are due within ten (10) days of Contractor's receipt of a fully executed GMP on a Construction Manager-at-Risk project or the Contract Sum for a Design-Build project, or within ten (10) days of Contractor's receipt of a fully executed Contract on competitively bid or competitive sealed proposal projects.

5.1.4 Power of Attorney. Each bond shall be accompanied by a valid power of attorney (issued by the surety company and attached, signed and sealed with the corporate embossed seal, to the bond) authorizing the attorney-in-fact who signs the bond to commit the company to the terms of the bond, and stating any limit in the amount for which the attorney can issue a single bond.

5.1.5 Bond Indemnification. The process of requiring and accepting bonds and making claims there under shall be conducted in compliance with Tex. Gov't Code, Ch. 2253. IF FOR ANY REASON A STATUTORY PAYMENT OR PERFORMANCE BOND IS NOT HONORED BY THE SURETY, CONTRACTOR SHALL FULLY INDEMNIFY AND HOLD OWNER HARMLESS OF AND FROM ANY COSTS, LOSSES, OBLIGATIONS OR LIABILITIES IT INCURS AS A RESULT.

5.1.6 Furnishing Bond Information. Owner shall furnish certified copies of the payment bond and the related Contract to any qualified person seeking copies who complies with Tex. Gov't Code § 2253.026.

5.1.7 Claims on Payment Bonds. Claims on payment bonds must be sent directly to Contractor and his surety in accordance with Tex. Gov't Code § 2253.041. All payment bond claimants are cautioned that no lien exists on the funds unpaid to Contractor on such Contract, and that reliance on notices sent to Owner may result in loss of their rights against Contractor and/or his surety. Owner is not responsible in any manner to a claimant for collection of unpaid bills, and accepts no such responsibility because of any representation by any agent or employee.

5.1.8 Payment Claims when Payment Bond not Required. The rights of Subcontractors regarding payment are governed by Tex. Prop. Code §§ 53.231 – 53.239 when the value of the Contract between Owner and Contractor is less than $25,000.00. These provisions set out the requirements for filing a valid lien on funds unpaid to Contractor as of the time of filing the claim, actions necessary to release the lien and satisfaction of such claim.

5.1.9 Sureties. A surety shall be listed on the US Department of the Treasury's Listing of Approved Sureties maintained by the Bureau of Financial Management Service (FMS), www.fms.treas.gov/c570, stating companies holding Certificates of Authority as acceptable sureties on Federal bonds and acceptable reinsuring companies (FMS Circular 570).

5.2 Insurance Requirements. Contractor shall carry insurance in the types and amounts indicated in this Article for the duration of the Contract. The insurance shall be evidenced by delivery to Owner of certificates of insurance executed by the insurer or its authorized agent stating coverages, limits, expiration dates and compliance with all applicable required provisions. Upon request, Owner, and/or its agents, shall be entitled to receive without expense, copies of the policies and all endorsements. Contractor shall update all expired policies prior to submission for monthly payment. Failure to update policies shall be reason for withholding of payment until renewal is provided to Owner.

5.2.1 Contractor shall provide and maintain all insurance coverage with the minimum amounts described below until the end of the warranty period unless otherwise stated in Supplementary General Conditions or Special Conditions. Failure to maintain insurance coverage, as required, is grounds for suspension of Work for cause pursuant to Article 14.

5.2.2 Contractor shall deliver to Owner true and complete copies of certificates and corresponding policy endorsements prior to the issuance of any Notice to Proceed.

5.2.3 Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

5.2.4 The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.2.5 The insurance coverage and limits established herein shall not be interpreted as any representation or warranty that the insurance coverage and limits necessarily will be adequate to protect Contractor.

5.2.6 Coverage shall be written on an occurrence basis by companies authorized and admitted to do business in the State of Texas and rated A or better by A.M. Best Company or similar rating company or otherwise acceptable to Owner.

5.2.2.1 Insurance Coverage Required.

5.2.2.1.1 Workers' Compensation. Insurance with limits as required by the Texas Workers' Compensation Act, with the policy endorsed to provide a waiver of subrogation in favor of Owner, employer's liability insurance of not less than:

$1,000,000 each accident;

$1,000,000 disease each employee; and

$1,000,000 disease policy limit.

5.2.2.1.2 Commercial General Liability Insurance. Including premises, operations, independent contractor's liability, products and completed operations and contractual liability, covering, but not limited to, the liability assumed under the indemnification provisions of this Contract, fully insuring Contractor's liability for bodily injury (including death) and property damage with a minimum limit of:

$1,000,000 per occurrence;

$2,000,000 general aggregate;

$5,000 Medical Expense each person;

$1,000,000 Personal Injury and Advertising Liability;

$2,000,000 products and completed operations aggregate;

$50,000 Damage to Premises Rented to You; and

Coverage shall be on an "occurrence" basis.

The policy shall include coverage extended to apply to completed operations and explosion, collapse, and underground hazards. The policy shall include endorsement CG2503 Amendment of Aggregate Limits of Insurance (per Project) or its equivalent.

If the Work involves any activities within fifty (50) feet of any railroad, railroad protective insurance as may be required by the affected railroad, written for not less than the limits required by such railroad.

5.2.2.1.3 Asbestos Abatement Liability Insurance, including coverage for liability arising from the encapsulation, removal, handling, storage, transportation, and disposal of asbestos containing materials. *This requirement applies if the Work or the Project includes asbestos containing materials.

The combined single limit for bodily injury and property damage will be a minimum of $1,000,000 per occurrence.

*Specific requirement for claims-made form: Required period of coverage will be determined by the following formula: continuous coverage for life of the Contract, plus one (1) year (to provide coverage for the warranty period), and an extended discovery period for a minimum of five (5) years which shall begin at the end of the warranty period.

Employer's liability limits for asbestos abatement will be:

$500,000 each accident;

$500,000 disease each employee; and

$500,000 disease policy limit.

If this Contract is for asbestos abatement only, the Special Form builder's risk or Special Form installation floater (e) is not required.

5.2.2.1.4 Comprehensive Automobile Liability Insurance, covering owned, hired, and non-owned vehicles, with a minimum combined single limit for bodily injury (including death) and property damage of $1,000,000 per accident. No aggregate shall be permitted for this type of coverage.

Such insurance is to include coverage for loading and unloading hazards.

5.2.2.1.5 Special Form Builder's Risk Insurance, if applicable (or Special Form installation floater for instances in which the project involves solely the installation of material and/or equipment). Coverage shall be Special Form, including, but not limited to, fire, extended coverage, vandalism and malicious mischief, theft and, if applicable, flood, earth movement and named storm. Builder's risk and installation floater limits shall be equal to 100 percent of the Contract Sum plus, if any, existing property and Owner-furnished equipment specified by Owner. The policy shall be written jointly in the names of Owner and Contractor. Subcontractors shall be named as additional insureds. The policy shall have endorsements as follows:

5.2.2.1.5.1 This insurance shall be specific as to coverage and not contributing insurance with any permanent insurance maintained on the property.

5.2.2.1.5.2 This insurance shall not contain an occupancy clause suspending or reducing coverage should Owner partially occupy the Site and before the parties have determined Substantial Completion.

5.2.2.1.5.3 Loss, if any, shall be adjusted with and made payable to Owner as trustee for the insureds as their interests may appear. Owner shall be named as loss payee.

5.2.2.1.5.4 For renovation projects or projects that involve portions of Work contained within an existing structure, refer to Supplementary General and Special Conditions for possible additional builder's risk insurance requirements.

5.2.2.1.5.5 For Owner furnished equipment or materials that will be in care, custody or control of Contractor, Contractor will be responsible for damage and loss.

5.2.2.1.5.6 For those properties located within a Tier 1 or 2 windstorm area, named storm coverage must be provided with limits specified by Owner.

5.2.2.1.5.7 For those properties located in flood prone areas, flood insurance coverage must be provided with limits specified by Owner.

5.2.2.1.5.8 Builder's risk insurance policy shall remain in effect until Substantial Completion.

5.2.2.1.6 "Umbrella" Liability Insurance. Contractor shall obtain, pay for and maintain umbrella liability insurance during the Contract term, insuring Contractor for an amount of not less than amount specified in the Supplementary General Conditions or Special Conditions that provides coverage at least as broad as and applies in excess and follows form of the primary liability coverages required hereinabove. The policy shall provide "drop down" coverage where underlying primary insurance coverage limits are insufficient or exhausted.

5.2.3 Policies must include the following clauses, as applicable:

5.2.3.1 This insurance shall not be canceled, materially changed, or non-renewed except after thirty (30) days written notice has been given to Owner.

5.2.3.2 It is agreed that Contractor's insurance shall be deemed primary with respect to any insurance or self insurance carried by Owner for liability arising out of operations under the Contract with Owner.

5.2.3.3 Owner, its officials, directors, employees, representatives, and volunteers are added as additional insureds as respects operations and activities of, or on behalf of the named insured performed under Contract with Owner. The additional insured status must cover completed operations as well. This is not applicable to workers' compensation policies.

5.2.3.4 A waiver of subrogation in favor of Owner shall be provided in all policies.

5.2.4 Without limiting any of the other obligations or liabilities of Contractor, Contractor shall require each Subcontractor performing work under the Contract, at Subcontractor's own expense, to maintain during the term of the Contract, the same stipulated minimum insurance including the required provisions and additional policy conditions as shown above. As an alternative, Contractor may include its Subcontractors as additional insureds on its own coverage as prescribed under these requirements. Contractor's certificate of insurance shall note in such event that Subcontractors are included as additional insureds and that Contractor agrees to provide workers' compensation for Subcontractors and their employees. Contractor shall obtain and monitor the certificates of insurance from each Subcontractor in order to assure compliance with the insurance requirements. Contractor must retain the certificates of insurance for the duration of the Contract plus five (5) years and shall have the responsibility of enforcing these insurance requirements among its Subcontractors. Owner shall be entitled, upon request and without expense, to receive copies of these certificates.

5.2.5 Workers' compensation insurance coverage must be provided for all workers at all tier levels and meet the statutory requirements of Tex. Lab. Code § 401.011(44) and specific to construction projects for public entities as required by Tex. Lab. Code § 406.096.

Article 6. Construction Documents, Coordination Documents, and Record Documents

6.1 Drawings and Specifications.

6.1.1 Copies Furnished. Contractor will be furnished, free of charge, the number of complete sets of the Drawings, Specifications, and Addenda as provided in the Supplementary General Conditions or Special Conditions. Additional complete sets of Drawings and Specifications, if requested, will be furnished at reproduction cost to the entity requesting such additional sets. Electronic copies of such documents will be provided to Contractor without charge.

6.1.2 Ownership of Drawings and Specifications. All Drawings, Specifications and copies thereof furnished by A/E are to remain A/E's property. These documents are not to be used on any other project, and with the exception of the Contract record set and electronic versions needed for warranty operations, are to be returned to the A/E, upon request, following completion of the Work.

6.1.3 Interrelation of Documents. The Contract Documents as referenced in the Contract between Owner and Contractor are complimentary, and what is required by one shall be as binding as if required by all.

6.1.4 Resolution of Conflicts in Documents. Where conflicts may exist within the Contract Documents, the documents shall govern in the following order: (a) Change Orders, addenda, and written amendments to the Contract; (b) the Contract; (c) Drawings; (d) Specifications (but Specifications shall control over Drawings as to quality of materials and workmanship); and (e) other Contract Documents. Among categories of documents having the same order of precedence, the term or provision that includes the latest date shall control and more specific requirements shall govern over general requirements. Contractor shall notify A/E and ODR for resolution of the issue prior to executing the Work in question.

6.1.5 Contractor's Duty to Review Contract Documents. In order to facilitate its responsibilities for completion of the Work in accordance with and as reasonably inferable from the Contract Documents, prior to commencing the Work, Contractor shall examine and compare the Contract Documents, information furnished by Owner, relevant field measurements made by Contractor and any visible or reasonably anticipated conditions at the Site affecting the Work. This duty extends throughout the construction phase prior to commencing each particular work activity and/or system installation.

6.1.6 Discrepancies and Omissions in Drawings and Specifications.

6.1.6.1 Promptly report to ODR and to A/E the discovery of any apparent error, omission or inconsistency in the Contract Documents prior to execution of the Work.

6.1.6.2 It is recognized that Contractor is not acting in the capacity of a licensed design professional, unless it is performing as a Design-Build firm.

6.1.6.3 It is further recognized that Contractor's examination of Contract Documents is to facilitate construction and does not create an affirmative responsibility to detect errors, omissions or inconsistencies or to ascertain compliance with applicable laws, building codes or regulations, unless it is performing as a Design-Build firm or a Construction Manager-at-Risk.

6.1.6.4 When performing as a Design-Build firm, Contractor has sole responsibility for discrepancies, errors, and omissions in the Drawings and Specifications.

6.1.6.5 When performing as a Construction Manager-at-Risk, Contractor has a shared responsibility with A/E for discovery and resolution of discrepancies, errors, and omissions in the Contract Documents. In such case, Contractor's responsibility pertains to review, coordination, and recommendation of resolution strategies within budget constraints.

6.1.6.6 Contractor has no liability for errors, omissions, or inconsistencies unless Contractor knowingly failed to report a recognized problem to Owner or the Work is executed under a Design-Build or Construction Manager-at-Risk Contract as outlined above. Should Contractor fail to perform the examination and reporting obligations of these provisions, Contractor is responsible for avoidable costs and direct and/or consequential damages.

6.2 Requirements for Record Documents. Contractor shall:

6.2.1 Maintain at the Site one copy of all Drawings, Specifications, addenda, approved submittals, Contract modifications, and all Project correspondence. Keep current and maintain Drawings and Specifications in good order with postings and markings to record actual conditions of Work and show and reference all changes made during construction. Provide Owner and A/E access to these documents.

6.2.2 Maintain the Record Documents including Drawings, Specifications and other materials which reflect the actual field conditions and representations of the Work performed, whether it be directed by addendum, Change Order or otherwise. Make available all records prescribed herein for reference and examination by Owner and its representatives and agents.

6.2.3 Update the Record Documents at least monthly prior to submission of periodic partial pay estimates. Failure to maintain current Record Documents constitutes cause for denial of a progress payment otherwise due.

6.2.4 Prior to requesting Substantial Completion inspection Contractor shall furnish a copy of its marked-up Record Documents and a preliminary copy of each instructional manual, maintenance and operating manual, parts catalog, wiring diagrams, spare parts, specified written warranties and like publications, or parts for all installed equipment, systems, and like items and as described in the Contract Documents. (Unexecuted samples of the aforementioned documentation may be reviewed by ODR when the absence of substantial completion transactions preclude execution; however, Contractor remains obligated to provide fully executed copies of such materials prior to final payment.)

6.2.5 Once determined acceptable by ODR with input from A/E, provide one (1) reproducible copy and one (1) electronic media copy of all Record Documents, unless otherwise required by the Supplementary General Conditions or Special Conditions.

6.2.6 Contractor shall be responsible for updating the Record Documents for all Contractor initiated documents and changes to the Contract Documents due to coordination and actual field conditions, including RFIs.

6.2.7 A/E shall be responsible for updating the Record Documents for any addenda, Change Orders, A/E supplemental instructions and any other alterations to the Contract Documents generated by A/E or Owner.

Article 7. Construction Safety

7.1 General. It is the duty and responsibility of Contractor and all of its Subcontractors to be familiar with, enforce and comply with all requirements of Public Law No. 91-596, 29 U.S.C. § 651 et. seq., the Occupational Safety and Health Act of 1970, (OSHA) and all amendments thereto. Contractor shall prepare a safety plan specific to the Project and submit it to ODR and A/E prior to commencing Work. In addition, Contractor and all of its Subcontractors shall comply with all applicable laws and regulations of any public body having jurisdiction for safety of persons or property to protect them from damage, injury or loss and erect and maintain all necessary safeguards for such safety and protection.

7.2 Notices. Contractor shall provide notices as follows:

7.2.1 Notify owners of adjacent property including those that own or operate utility services and/or underground facilities, and utility owners, when prosecution of the Work may affect them or their facilities, and cooperate with them in the protection, removal, relocation and replacement, and access to their facilities and/or utilities.

7.2.2 Coordinate the exchange of material safety data sheets (MSDSs) or other hazard communication information required to be made available to or exchanged between or among employers at the site in connection with laws and regulations. Maintain a complete file of MSDSs for all materials in use on site throughout the construction phase and make such file available to Owner and its agents as requested.

7.3 Emergencies. In any emergency affecting the safety of persons or property, Contractor shall act to minimize, mitigate, and prevent threatened damage, injury or loss.

7.3.1 Have authorized agents of Contractor respond immediately upon call at any time of day or night when circumstances warrant the presence of Contractor to protect the Work or adjacent property from damage or to take such action pertaining to the Work as may be necessary to provide for the safety of the public.

7.3.2 Give ODR and A/E prompt notice of all such events.

7.3.3 If Contractor believes that any changes in the Work or variations from Contract Documents have been caused by its emergency response, promptly notify Owner within seventy-two (72) hours of the emergency response event.

7.3.4 Should Contractor fail to respond, Owner is authorized to direct other forces to take action as necessary and Owner may deduct any cost of remedial action from funds otherwise due Contractor.

7.4 Injuries. In the event of an incident or accident involving outside medical care for an individual on or near the Work, Contractor shall notify ODR and other parties as may be directed promptly, but no later than twenty-four (24) hours after Contractor learns that an event required medical care.

7.4.1 Record the location of the event and the circumstances surrounding it, by using photography or other means, and gather witness statements and other documentation which describes the event.

7.4.2 Supply ODR and A/E with an incident report no later than thirty-six (36) hours after the occurrence of the event. In the event of a catastrophic incident (one (1) fatality or three (3) workers hospitalized), barricade and leave intact the scene of the incident until all investigations are complete. A full set of incident investigation documents, including facts, finding of cause, and remedial plans shall be provided within one (1) week after occurrence, unless otherwise directed by legal counsel. Contractor shall provide ODR with

written notification within one week of such catastrophic event if legal counsel delays submission of full report.

7.5 Environmental Safety. Upon encountering any previously unknown potentially hazardous material, or other materials potentially contaminated by hazardous material, Contractor shall immediately stop work activities impacted by the discovery, secure the affected area, and notify ODR immediately.

7.5.1 Bind all Subcontractors to the same duty.

7.5.2 Upon receiving such notice, ODR will promptly engage qualified experts to make such investigations and conduct such tests as may be reasonably necessary to determine the existence or extent of any environmental hazard. Upon completion of this investigation, ODR will issue a written report to Contractor identifying the material(s) found and indicate any necessary steps to be taken to treat, handle, transport or dispose of the material.

7.5.3 Owner may hire third-party Contractors to perform any or all such steps.

7.5.4 Should compliance with ODR's instructions result in an increase in Contractor's cost of performance, or delay the Work, Owner will make an equitable adjustment to the Contract Sum and/or the time of completion, and modify the Contract in writing accordingly.

7.6 Trenching Plan. When the project requires excavation which either exceeds a depth of four (4) feet, or results in any worker's upper body being positioned below grade level, Contractor is required to submit a trenching plan to ODR prior to commencing trenching operations unless an engineered plan is part of the Contract Documents. The plan is required to be prepared and sealed by a professional engineer registered in the State of Texas, and hired or employed by Contractor or Subcontractor to perform the work. Said engineer cannot be anyone who is otherwise either directly or indirectly engaged on this project.

Article 8. Quality Control

8.1 Materials & Workmanship. Contractor shall execute Work in a good and workmanlike matter in accordance with the Contract Documents. Contractor shall develop and provide a quality control plan specific to this Project and acceptable to Owner. Where Contract Documents do not specify quality standards, complete and construct all Work in compliance with generally accepted construction industry standards. Unless otherwise specified, incorporate all new materials and equipment into the Work under the Contract.

8.2 Testing.

8.2.1 Owner is responsible for coordinating and paying for routine and special tests required to confirm compliance with quality and performance requirements, except as stated below or otherwise required by the Contract Documents. Contractor shall provide the following testing:

8.2.1.1 Any test of basic material or fabricated equipment included as part of a submittal for a required item in order to establish compliance with the Contract Documents.

8.2.1.2 Any test of basic material or fabricated equipment offered as a substitute for a specified item on which a test may be required in order to establish compliance with the Contract Documents.

8.2.1.3 Preliminary, start-up, pre-functional and operational testing of building equipment and systems as necessary to confirm operational compliance with requirements of the Contract Documents.

8.2.1.4 All subsequent tests on original or replaced materials conducted as a result of prior testing failure.

8.2.2 All testing shall be performed in accordance with standard test procedures by an accredited laboratory, or special consultant as appropriate, acceptable to Owner. Results of all tests shall be provided promptly to ODR, A/E, and Contractor.

8.2.3 Non-Compliance (Test Results). Should any of the tests indicate that a material and/or system does not comply with the Contract requirements, the burden of proof remains with Contractor, subject to:

8.2.3.1 Contractor selection and submission of the laboratory for Owner acceptance.

8.2.3.2 Acceptance by Owner of the quality and nature of tests.

8.2.3.3 All tests taken in the presence of A/E and/or ODR, or their representatives.

8.2.3.4 If tests confirm that the material/systems comply with Contract Documents, Owner will pay the cost of the test.

8.2.3.5 If tests reveal noncompliance, Contractor will pay those laboratory fees and costs of that particular test and all future tests, of that failing Work, necessary to eventually confirm compliance with Contract Documents.

8.2.3.6 Proof of noncompliance with the Contract Documents will make Contractor liable for any corrective action which ODR determines appropriate, including complete removal and replacement of non-compliant work or material.

8.2.4 Notice of Testing. Contractor shall give ODR and A/E timely notice of its readiness and the date arranged so ODR and A/E may observe such inspection, testing, or approval.

8.2.5 Test Samples. Contractor is responsible for providing Samples of sufficient size for test purposes and for coordinating such tests with their Work Progress Schedule to avoid delay.

8.2.6 Covering Up Work. If Contractor covers up any Work without providing Owner an opportunity to inspect, Contractor shall, if requested by ODR, uncover and recover the work at Contractor's expense.

8.3 Submittals.

8.3.1 Contractor's Submittals. Contractor shall submit with reasonable promptness consistent with the Project schedule and in orderly sequence all Shop Drawings, Samples, or other information required by the Contract Documents, or subsequently required by Change Order. Prior to submitting, Contractor shall review each submittal for general compliance with Contract Documents and approve submittals for review by A/E and Owner by an approval stamp affixed to each copy. Submittal data presented without Contractor's stamp will be returned without review or comment, and any delay resulting from failure is Contractor's responsibility.

8.3.1.1 Contractor shall within twenty-one (21) days of the effective date of the Notice To Proceed with construction, submit to ODR and A/E, a submittal schedule/register, organized by specification section, listing all items to be furnished for review and approval by A/E and Owner. The list shall include Shop Drawings, manufacturer's literature, certificates of compliance, materials Samples, materials colors, guarantees, and all other items identified throughout the Specifications.

8.3.1.2 Contractor shall indicate the type of item, Contract requirements reference, and Contractor's scheduled dates for submitting the item along with the requested dates for approval answers from A/E and Owner. The submittal register shall indicate the projected dates for procurement of all included items and shall be updated at least monthly with actual approval and procurement dates. Contractor's Submittal Register must be reasonable in terms of the review time for complex submittals. Contractor's submittal schedule must be consistent with the Work Progress Schedule and identify critical submittals. Show and allow a minimum of fifteen (15) calendar days duration after receipt by A/E and ODR for review and approval. If resubmittal required, allow a minimum of an additional fifteen (15) calendar days for review. Submit the updated Submittal Register with each request for progress payment. Owner may establish routine review procedures and schedules for submittals at the preconstruction conference and/or elsewhere in the Contract Documents. If Contractor fails to update and provide the Submittal Register as required, Owner may, after seven (7) days notice to Contractor withhold a reasonable sum of money that would otherwise be due Contractor.

8.3.1.3 Contractor shall coordinate the Submittal Register with the Work Progress Schedule. Do not schedule Work requiring a submittal to begin prior to scheduling review and approval of the related submittal. Revise and/or update both schedules monthly to ensure consistency and current project data. Provide to ODR the updated Submittal Register and schedule with each application for progress payment. Refer to requirements for the Work Progress Schedule for inclusion of procurement activities therein. Regardless, the Submittal Register shall identify dates submitted and returned and shall be used to confirm status and disposition of particular items submitted, including approval or other action taken and other information not conveniently tracked through the Work Progress Schedule.

8.3.1.4 By submitting Shop Drawings, Samples or other required information, Contractor represents that it has determined and verified all applicable field measurements, field construction criteria, materials, catalog numbers and similar data to the extent possible from existing conditions and design information provided by A/E prior to fabrication; and has checked and coordinated each Shop Drawing and Sample with the requirements of the Work and the Contract Documents.

8.3.2 Review of Submittals. A/E and ODR review is only for conformance with the design concept and the information provided in the Contract Documents. Responses to submittals will be in writing. The approval of a separate item does not indicate approval of an assembly in which the item functions. The approval of a submittal does not relieve Contractor of responsibility for any deviation from the requirements of the Contract unless Contractor informs A/E and ODR of such deviation in a clear, conspicuous, and written manner on the submittal transmittal and at the time of submission, and obtains Owner's written specific approval of the particular deviation.

8.3.3 Correction and Resubmission. Contractor shall make any corrections required to a submittal and resubmit the required number of corrected copies promptly so as to avoid delay, until submittal approval. Direct attention in writing to A/E and ODR, when applicable, to any new revisions other than the corrections requested on previous submissions.

8.3.4 Limits on Shop Drawing Review. Contractor shall not commence any Work requiring a submittal until review of the submittal under Subsection 8.3.2. Construct all such work in accordance with reviewed submittals. Comments incorporated as part of the review in Subsection 8.3.2 of Shop Drawings and Samples is not authorization to Contractor to perform extra work or changed work unless authorized through a Change Order. A/E's and ODR's review, if any, does not relieve Contractor from responsibility for defects in the Work resulting from errors or omissions of any kind on the submittal, regardless of any approval action. A/E or ODR shall not make formal changes to the Contract Documents via the submittal process. Changes

to the Construction Documents shall be accomplished via Section 3.2.2 and Article 11 Changes.

8.3.5 No Substitutions Without Approval. ODR and A/E may receive and consider Contractor's request for substitution when Contractor agrees to reimburse Owner for review costs and satisfies the requirements of this section. If Contractor does not satisfy these conditions, ODR and A/E will return the request without action except to record noncompliance with these requirements. Owner will not consider the request if Contractor cannot provide the product or method because of failure to pursue the Work promptly or coordinate activities properly. Contractor's request for a substitution may be considered by ODR and A/E when:

8.3.5.1 The Contract Documents do not require extensive revisions; and

8.3.5.2 Proposed changes are in keeping with the general intent of the Contract Documents and the design intent of A/E and do not result in an increase in cost to Owner; and

8.3.5.3 The request is timely, fully documented, properly submitted and one or more of the following apply:

8.3.5.3.1 Contractor cannot provide the specified product, assembly or method of construction within the Contract Time;

8.3.5.3.2 The request directly relates to an "or-equal" clause or similar language in the Contract Documents;

8.3.5.3.3 The request directly relates to a "product design standard" or "performance standard" clause in the Contract Documents;

8.3.5.3.4 The requested substitution offers Owner a substantial advantage in cost, time, energy conservation or other considerations, after deducting additional responsibilities Owner must assume;

8.3.5.3.5 The specified product or method of construction cannot receive necessary approval by an authority having jurisdiction, and ODR can approve the requested substitution;

8.3.5.3.6 Contractor cannot provide the specified product, assembly or method of construction in a manner that is compatible with other materials and where Contractor certifies that the substitution will overcome the incompatibility;

8.3.5.3.7 Contractor cannot coordinate the specified product, assembly or method of construction with other materials and where Contractor certifies they can coordinate the proposed substitution; or

8.3.5.3.8 The specified product, assembly or method of construction cannot provide a warranty required by the Contract Documents and where Contractor certifies that the proposed substitution provides the required warranty.

8.3.5.3.9 The manufacture of the specified product has been removed from production due to cancellation or obsolescence.

8.3.6 Unauthorized Substitutions at Contractor's Risk. Contractor is financially responsible for any additional costs or delays resulting from unauthorized substitution of materials, equipment or fixtures other than those specified. Contractor shall reimburse Owner for any increased design or contract administration costs resulting from such unauthorized substitutions.

8.4 Field Mock-up.

8.4.1 Mock-ups shall be constructed prior to commencement of a specified scope of work to confirm acceptable workmanship.

8.4.1.1 As a minimum, field mock-ups shall be constructed for roofing systems, exterior veneer / finish systems, glazing systems, and any other Work requiring a mock-up as identified throughout the Contract Documents. Mock-ups for systems not part of the Project scope shall not be required.

8.4.1.2 Mock-ups may be incorporated into the Work if allowed by the Contract Documents and if acceptable to ODR. If mock-ups are freestanding, they shall remain in place until otherwise directed by Owner.

8.4.1.3 Contractor shall include field mock-ups in their Work Progress Schedule and shall notify ODR and A/E of readiness for review sufficiently in advance to coordinate review without delay.

8.5 Inspection During Construction.

8.5.1 Contractor shall provide sufficient, safe, and proper facilities, including equipment as necessary for safe access, at all reasonable times for observation and/or inspection of the Work by Owner and its agents. "Reasonable times" of inspection allow for sufficient monitoring of the quality of materials and installation without substantially impeding the progress of the Work.

8.5.2 Contractor shall not cover up any Work with finishing materials or other building components prior to providing Owner and its agents an opportunity to perform an inspection of the Work.

8.5.2.1 Should corrections of the Work be required for approval, Contractor shall not cover-up corrected Work until Owner indicates approval.

8.5.2.2 Contractor shall provide notification of at least five (5) working days or otherwise as mutually agreed, to ODR of the anticipated need for a cover-up inspection. Should ODR fail to make the necessary inspection within the agreed period, Contractor may proceed with cover-up Work, but is not relieved of responsibility for Work to comply with requirements of the Contract Documents.

Article 9. Construction Schedules

9.1 Contract Time. **TIME IS AN ESSENTIAL ELEMENT OF THE CONTRACT**. The Contract Time is the time between the dates indicated in the Notice to Proceed for commencement of the Work and for achieving Substantial Completion. The Contract Time can be modified only by Change Order. Failure to achieve Substantial Completion within the Contract Time as otherwise agreed to in writing will cause damage to Owner and may subject Contractor to liquidated damages as provided in the Contract Documents. If Contractor fails to achieve Final Completion within thirty (30) calendar days after Substantial Completion or a mutually agreed upon longer period of time between Contractor and Owner, Contractor shall be responsible for Owner's additional inspection, project management, and maintenance cost to the extent caused by Contractor's failure to achieve Final Completion.

9.2 Notice to Proceed. Owner will issue a Notice to Proceed which shall state the dates for beginning Work and for achieving Substantial Completion of the Work.

9.3 Work Progress Schedule. Refer to Supplementary General Conditions or Special Conditions for additional schedule requirements. Unless indicated otherwise in those documents, Contractor shall submit their initial Work Progress Schedule for the Work in relation to the entire Project not later than twenty-one (21) days after the effective date of the Notice to Proceed to ODR and A/E. Unless otherwise indicated in the Contract Documents, the Work Progress Schedule shall be computerized Critical Path Method (CPM) with fully editable logic. This initial schedule shall indicate the dates for starting and completing the various aspects required to complete the Work, including mobilization, procurement, installation, testing, inspection, delivery of Close-out Documents and acceptance of all the Work of the Contract. When acceptable to Owner, the initially accepted schedule shall be the Baseline Schedule for comparison to actual conditions throughout the Contract duration.

9.3.1 Schedule Requirements. Contractor shall submit electronic and paper copy of the initial Work Progress Schedule reflecting accurate and reliable representations of the planned progress of the Work, the Work to date if any, and of Contractor's actual plans for its completion. Contractor shall organize

and provide adequate detail so the schedule is capable of measuring and forecasting the effect of delaying events on completed and uncompleted activities.

9.3.1.1 Contractor shall resubmit initial schedule as required to address review comments from A/E and ODR until such schedule is accepted as the Baseline Schedule.

9.3.1.2 Submittal of a schedule, schedule revision or schedule update constitutes Contractor's representation to Owner of the accurate depiction of all progress to date and that Contractor will follow the schedule as submitted in performing the Work.

9.3.2 Schedule Updates. Contractor shall update the Work Progress Schedule and the Submittal Register monthly, as a minimum, to reflect progress to date and current plans for completing the Work, while maintaining original schedule as Baseline Schedule and submit paper and electronic copies of the update to A/E and ODR as directed, but as a minimum with each request for payment. Owner has no duty to make progress payments unless accompanied by the updated Work Progress Schedule. Show the anticipated date of completion reflecting all extensions of time granted through Change Order as of the date of the update. Contractor may revise the Work Progress Schedule when in Contractor's judgment it becomes necessary for the management of the Work. Contractor shall identify all proposed changes to schedule logic to Owner and to A/E via an executive summary accompanying the updated schedule for review prior to final implementation of revisions into a revised Baseline Schedule. Schedule changes that materially impact Owner's operations shall be communicated promptly to ODR and shall not be incorporated into the revised Baseline Schedule without ODR's consent.

9.3.3 The Work Progress Schedule is for Contractor's use in managing the Work and submittal of the schedule, and successive updates or revisions, is for the information of Owner and to demonstrate that Contractor has complied with requirements for planning the Work. Owner's acceptance of a schedule, schedule update or revision constitutes Owner's agreement to coordinate its own activities with Contractor's activities as shown on the schedule.

9.3.3.1 Acceptance of the Work Progress Schedule, or update and/or revision thereto does not indicate any approval of Contractor's proposed sequences and duration.

9.3.3.2 Acceptance of a Work Progress Schedule update or revision indicating early or late completion does not constitute Owner's consent, alter the terms of the Contract, or waive either Contractor's responsibility for timely completion or Owner's right to damages for Contractor's failure to do so.

9.3.3.3 Contractor's scheduled dates for completion of any activity or the entire Work do not constitute a change in terms of the Contract.

Change Orders are the only method of modifying the Substantial Completion Date(s) and Contract Time.

9.4 Ownership of Float. Unless indicated otherwise in the Contract Documents, Contractor shall develop its schedule, pricing, and execution plan to provide a minimum of ten (10) percent total float at acceptance of the Baseline Schedule. Float time contained in the Work Progress Schedule is not for the exclusive benefit of Contractor or Owner, but belongs to the Project and may be consumed by either party as needed on a first-used basis.

9.5 Completion of Work. Contractor is accountable for completing the Work within the Contract Time stated in the Contract, or as otherwise amended by Change Order.

9.5.1 If, in the judgment of Owner, the work is behind schedule and the rate of placement of work is inadequate to regain scheduled progress to insure timely completion of the entire work or a separable portion thereof, Contractor, when so informed by Owner, shall immediately take action to increase the rate of work placement by:

9.5.1.1 An increase in working forces.

9.5.1.2 An increase in equipment or tools.

9.5.1.3 An increase in hours of work or number of shifts.

9.5.1.4 Expedite delivery of materials.

9.5.1.5 Other action proposed if acceptable to Owner.

9.5.2 Within ten (10) days after such notice from ODR, Contractor shall notify ODR in writing of the specific measures taken and/or planned to increase the rate of progress. Contactor shall include an estimate as to the date of scheduled progress recovery and an updated Work Progress Schedule illustrating Contractor's plan for achieving timely completion of the Project. Should ODR deem the plan of action inadequate, Contractor shall take additional steps or make adjustments as necessary to its plan of action until it meets with ODR's approval.

9.6 Modification of the Contract Time.

9.6.1 Delays and extension of time as hereinafter described are valid only if executed in accordance with provisions set forth in Article 11.

9.6.2 When a delay defined herein as excusable prevents Contractor from completing the Work within the Contract Time, Contractor is entitled to an extension of time. Owner will make an equitable adjustment and extend the number of days lost because of excusable delay or Weather Days, as measured by Contractor's progress schedule. All extensions of time will be granted in calendar days. In no event, however, will an extension of time be granted for

delays that merely extend the duration of non-critical activities, or which only consume float without delaying the project Substantial Completion date(s).

9.6.2.1 A "Weather Day" is a day on which Contractor's current schedule indicates Work is to be done, and on which inclement weather and/or related site conditions prevent Contractor from performing seven (7) continuous hours of Work on the critical path between the hours of 7:00 a.m. and 6:00 p.m. Weather days are excusable delays. When weather conditions at the site prevent work from proceeding, Contractor shall immediately notify ODR for confirmation of the conditions. At the end of each calendar month, submit to ODR and A/E a list of Weather Days occurring in that month along with documentation of the impact on critical activities. Based on confirmation by ODR, any time extension granted will be issued by Change Order. If Contractor and Owner cannot agree on the time extension, Owner may issue a ULCO for fair and reasonable time extension.

9.6.2.2 Excusable Delay. Contractor is entitled to an equitable adjustment of the Contract Time, issued via change order, for delays caused by the following:

9.6.2.2.1 Errors, omissions and imperfections in design, which A/E corrects by means of changes in the Drawings and Specifications.

9.6.2.2.2 Unanticipated physical conditions at the Site, which A/E corrects by means of changes to the Drawings and Specifications or for which ODR directs changes in the Work identified in the Contract Documents.

9.6.2.2.3 Failure of Owner to have secured property, right-of-way or easements necessary for Work to begin or progress.

9.6.2.2.4 Changes in the Work that effect activities identified in Contractor's schedule as "critical" to completion of the entire Work, if such changes are ordered by ODR or recommended by A/E and ordered by ODR.

9.6.2.2.5 Suspension of Work for unexpected natural events, Force Majeure (sometimes called "acts of God"), civil unrest, strikes or other events which are not within the reasonable control of Contractor.

9.6.2.2.6 Suspension of Work for convenience of ODR, which prevents Contractor from completing the Work within the Contract Time.

9.6.2.2.7 Administrative delays caused by activities or approval requirements related to an Authority Having Jurisdiction.

9.6.3 Contractor's relief in the event of such delays is the time impact to the critical path as determined by analysis of Contractor's schedule. In the event that Contractor incurs additional direct costs because of the excusable delays other than described in Subparagraph 9.6.2.2.4 and within the reasonable control of Owner, the Contract price and Contract Time are to be equitably adjusted by Owner pursuant to the provisions of Article 11.

9.7 No Damages for Delay. Contractor has no claim for monetary damages for delay or hindrances to the work from any cause, including without limitation any act or omission of Owner.

9.8 Concurrent Delay. When the completion of the Work is simultaneously delayed by an excusable delay and a delay arising from a cause not designated as excusable, Contractor may not be entitled to a time extension for the period of concurrent delay.

9.9 Other Time Extension Requests. Time extensions requested in association with changes to the Work directed or requested by Owner shall be included with Contractor's proposed costs for such change. Time extensions requested for inclement weather are covered by Paragraph 9.6.2.1 above. If Contractor believes that the completion of the Work is delayed by a circumstance other than for changes directed to the Work or weather, they shall give ODR written notice, stating the nature of the delay and the activities potentially affected, within five (5) days after the onset of the event or circumstance giving rise to the excusable delay. Contractor shall provide sufficient written evidence to document the delay. In the case of a continuing cause of delay, only one claim is necessary. State claims for extensions of time in numbers of whole or half days.

9.9.1 Within ten (10) days after the cessation of the delay, Contractor shall formalize its request for extension of time in writing to include a full analysis of the schedule impact of the delay and substantiation of the excusable nature of the delay. All changes to the Contract Time or made as a result of such claims is by Change Order, as set forth in Article 11.

9.9.2 No extension of time releases Contractor or the Surety furnishing a performance or payment bond from any obligations under the Contract or such a bond. Those obligations remain in full force until the discharge of the Contract.

9.9.3 Contents of Time Extension Requests. Contractor shall provide with each Time Extension Request a quantitative demonstration of the impact of the delay on project completion time, based on the Work Progress Schedule. Contractor shall include with Time Extension Requests a reasonably detailed narrative setting forth:

9.9.3.1 The nature of the delay and its cause; the basis of Contractor's claim of entitlement to a time extension.

9.9.3.2 Documentation of the actual impacts of the claimed delay on the critical path indicated in Contractor's Work Progress Schedule, and any concurrent delays.

9.9.3.3 Description and documentation of steps taken by Contractor to mitigate the effect of the claimed delay, including, when appropriate, the modification of the Work Progress Schedule.

9.9.4 Owner's Response. Owner will respond to the Time Extension Request by providing to Contractor written notice of the number of days granted, if any, and giving its reason if this number differs from the number of days requested by Contractor.

9.9.4.1 Owner will not grant time extensions for delays that do not affect the Contract Substantial Completion date.

9.9.4.2 Owner will respond to each properly submitted Time Extension Request within fifteen (15) days following receipt. If Owner cannot reasonably make a determination about Contractor's entitlement to a time extension within that time, Owner will notify Contractor in writing. Unless otherwise agreed by Contractor, Owner has no more than fifteen (15) additional days to prepare a final response. If Owner fails to respond within forty-five (45) days from the date the Time Extension Request is received, Contractor is entitled to a time extension in the amount requested.

9.10 Failure to Complete Work Within the Contract Time. **TIME IS AN ESSENTIAL ELEMENT OF THE CONTRACT.** Contractor's failure to substantially complete the Work within the Contract Time or to achieve Substantial Completion as required will cause damage to Owner. These damages shall be liquidated by agreement of Contractor and Owner, in the amount per day as set forth in the Contract Documents.

9.11 Liquidated Damages. Owner may collect liquidated damages due from Contractor directly or indirectly by reducing the Contract Sum in the amount of liquidated damages stated in the Supplementary General Conditions or Special Conditions.

Article 10. Payments

10.1 Schedule of Values. Contractor shall submit to ODR and A/E for acceptance a Schedule of Values accurately itemizing material and labor for the various classifications of the Work based on the organization of the specification sections and of sufficient detail acceptable to ODR. The accepted Schedule of Values will be the basis for the progress payments under the Contract.

10.1.1 No progress payments will be made prior to receipt and acceptance of the Schedule of Values, provided in such detail as required by ODR, and submitted not less than twenty-one (21) days prior to the first request for payment. The Schedule of Values shall follow the order of trade divisions of the Specifications and include itemized costs for general conditions, costs for preparing close out documents, fees, contingencies, and Owner cash allowances, if applicable, so that the sum of the items will equal the Contract price. As appropriate, assign each item labor and/or material values, the subtotal thereof equaling the value of the work in place when complete.

10.1.1.1 Owner requires that the Work items be inclusive of the cost of the Work items only. Any contract markups for overhead and profit, general conditions, etc., shall be contained within separate line items for those specific purposes which shall be divided into at least two(2) lines, one (1) for labor and one (1) for materials.

10.1.2 Contractor shall retain a copy of all worksheets used in preparation of its bid or proposal, supported by a notarized statement that the worksheets are true and complete copies of the documents used to prepare the bid or proposal. Make the worksheets available to ODR at the time of Contract execution. Thereafter Contractor shall grant Owner during normal business hours access to said copy of worksheets at any time during the period commencing upon execution of the Contract and ending one year after final payment.

10.2. Progress Payments. Contractor will receive periodic progress payments for Work performed, materials in place, suitably stored on Site, or as otherwise agreed to by Owner and Contractor. Payment is not due until receipt by ODR or his designee of a correct and complete Pay Application in electronic and/or hard copy format as set forth in Supplementary General Conditions, Special Conditions, and certified by A/E. Progress payments are made provisionally and do not constitute acceptance of work not in accordance with the Contract Documents. Owner will not process progress payment applications for Change Order Work until all parties execute the Change Order.

10.2.1 Preliminary Pay Worksheet. Once each month that a progress payment is to be requested, the Contractor shall submit to A/E and ODR a complete, clean copy of a preliminary pay worksheet or preliminary pay application, to include the following:

10.2.1.1 Contractor's estimate of the amount of Work performed, labor furnished and materials incorporated into the Work, using the established Schedule of Values;

10.2.1.2 An updated Work Progress Schedule including the executive summary and all required schedule reports;

10.2.1.3 HUB subcontracting plan Progress Assessment Report as required in Paragraph 4.2.5.1;

10.2.1.4 Such additional documentation as Owner may require as set forth in the Supplementary General Conditions or elsewhere in the Contract Documents; and

10.2.1.5 Construction payment affidavit.

10.2.2 Contractor's Application for Payment. As soon as practicable, but in no event later than seven (7) days after receipt of the preliminary pay worksheet, A/E and ODR will meet with Contractor to review the preliminary pay worksheet and to observe the condition of the Work. Based on this review, ODR and A/E may require modifications to the preliminary pay worksheet prior to the submittal of an Application for Payment, and will promptly notify Contractor of revisions necessary for approval. As soon as practicable, Contractor shall submit its Application for Payment on the appropriate and completed form, reflecting the required modifications to the Schedule of Values required by A/E and/or ODR. Attach all additional documentation required by ODR and/or A/E, as well as an affidavit affirming that all payrolls, bills for labor, materials, equipment, subcontracted work and other indebtedness connected with Contractor's Application for Payment are paid or will be paid within the time specified in Tex. Gov't Code, Ch. 2251. No Application for Payment is complete unless it fully reflects all required modifications, and attaches all required documentation including Contractor's affidavit.

10.2.3 Certification by Architect/Engineer. Within five (5) days or earlier following A/E's receipt of Contractor's formal Application for Payment, A/E will review the Application for Payment for completeness, and forward it to ODR. A/E will certify that the application is complete and payable, or that it is incomplete, stating in particular what is missing. If the Application for Payment is incomplete, Contractor shall make the required corrections and resubmit the Application for Payment for processing.

10.3 Owner's Duty to Pay. Owner has no duty to pay the Contractor except on receipt by ODR of: 1) a complete Application for Payment certified by A/E; 2) Contractor's updated Work Progress Schedule; and 3) confirmation that Contractor's record documentation at the Site is kept current.

10.3.1 Payment for stored materials and/or equipment confirmed by Owner and A/E to be on-site or otherwise properly stored is limited to eighty-five (85) percent of the invoice price or eighty-five (85) percent of the scheduled value for the materials or equipment, whichever is less.

10.3.2 Retainage. Owner will withhold from each progress payment, as retainage, five (5) percent of the total earned amount, the amount authorized by law, or as otherwise set forth in the Supplementary General Conditions or Special Conditions. Retainage is managed in conformance with Tex. Gov't Code, Ch. 2252, Subch. B.

10.3.2.1 Contractor shall provide written consent of its surety for any request for reduction or release of retainage.

10.3.2.2 At least sixty-five (65) percent of the Contract, or such other discrete Work phase as set forth in Subsection 12.1.6 or Work package delineated in the Contract Documents, must be completed before Owner can consider a retainage reduction or release.

10.3.2.3 Contractor shall not withhold retainage from their Subcontractors and suppliers in amounts that are any percentage greater than that withheld in its Contract with Owner under this subsection, unless otherwise acceptable to Owner.

10.3.3 Price Reduction to Cover Loss. Owner may reduce any Application for Payment, prior to payment to the extent necessary to protect Owner from loss on account of actions of Contractor including, but not limited to, the following:

10.3.3.1 Defective or incomplete Work not remedied;

10.3.3.2 Damage to Work of a separate Contractor;

10.3.3.3 Failure to maintain scheduled progress or reasonable evidence that the Work will not be completed within the Contract Time;

10.3.3.4 Persistent failure to carry out the Work in accordance with the Contract Documents;

10.3.3.5 Reasonable evidence that the Work cannot be completed for the unpaid portion of the Contract Sum;

10.3.3.6 Assessment of fines for violations of prevailing wage rate law; or

10.3.3.7 Failure to include the appropriate amount of retainage for that periodic progress payment.

10.3.4 Title to all material and Work covered by progress payments transfers to Owner upon payment.

10.3.4.1 Transfer of title to Owner does not relieve Contractor and its Subcontractors of the sole responsibility for the care and protection of materials and Work upon which payments have been made until substantial completion, responsibility for the care and protection of materials and Work in areas where punch list items are completed until final completion or the restoration of any damaged Work, or waive the right of Owner to require the fulfillment of all the terms of the Contract.

10.4 Progress Payments. Progress payments to Contractor do not release Contractor or its surety from any obligations under the Contract.

10.4.1 Upon Owner's request, Contractor shall furnish manifest proof of the status of Subcontractor's accounts in a form acceptable to Owner.

10.4.2 Pay estimate certificates must be signed by a corporate officer or a representative duly authorized by Contractor.

10.4.3 Provide copies of bills of lading, invoices, delivery receipts or other evidence of the location and value of such materials in requesting payment for materials.

10.4.4 For purposes of Tex. Gov't Code § 2251.021(a)(2), the date the performance of service is complete is the date when ODR approves the Application for Payment.

10.5 Off-Site Storage. With prior approval by Owner and in the event Contractor elects to store materials at an off-site location, abide by the following conditions, unless otherwise agreed to in writing by Owner.

10.5.1 Store materials in a commercial warehouse meeting the criteria stated below.

10.5.2 Provide insurance coverage adequate not only to cover materials while in storage, but also in transit from the off-site storage areas to the Project Site. Copies of duly authenticated certificates of insurance, made out to insure the State agency which is signatory to the Contract, must be filed with Owner's representative.

10.5.3 Inspection by Owner's representative is allowed at any time. Owner's inspectors must be satisfied with the security, control, maintenance, and preservation measures.

10.5.4 Materials for this Project are physically separated and marked for the Project in a sectioned-off area. Only materials which have been approved through the submittal process are to be considered for payment.

10.5.5 Owner reserves the right to reject materials at any time prior to final acceptance of the complete Contract if they do not meet Contract requirements regardless of any previous progress payment made.

10.5.6 With each monthly payment estimate, submit a report to ODR and A/E listing the quantities of materials already paid for and still stored in the off-site location.

10.5.7 Make warehouse records, receipts and invoices available to Owner's representatives, upon request, to verify the quantities and their disposition.

10.5.8 In the event of Contract termination or default by Contractor, the items in storage off-site, upon which payment has been made, will be promptly turned over to Owner or Owner's agents at a location near the jobsite as directed by ODR. The full provisions of performance and payment bonds on this Project cover the materials off-site in every respect as though they were stored on the Project Site.

10.6 Time for Payment by Contractor Pursuant to Tex. Gov't Code § 2255.022.

10.6.1 Contractor who receives a payment from a governmental entity shall pay Subcontractor the appropriate share of the payment not later than the tenth (10^{th}) day after the date Contractor receives the payment.

10.6.2 The appropriate share is overdue on the eleventh (11^{th}) day after the date Conrtactor receives the payment.

Article 11. Changes

11.1 Change Orders. A Change Order issued after execution of the Contract is a written order to Contractor, signed by ODR, Contractor, and A/E, authorizing a change in the Work or an adjustment in the Contract Sum or the Contract Time. The Contract Sum and the Contract Time can only be changed by Change Order. A Change Order signed by Contractor indicates his agreement therewith, including the adjustment in the Contract Sum and/or the Contract Time. ODR may issue a written authorization for Contractor to proceed with Work of a Change Order in advance of final execution by all parties in accordance with Section 11.9.

11.1.1 Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, and the Contract Sum and the Contract Time will be adjusted accordingly. All such changes in the Work shall be authorized by Change Order or ULCO, and shall be performed under the applicable conditions of the Contract Documents. If such changes cause an increase or decrease in Contractor's cost of, or time required for, performance of the Contract, an equitable adjustment shall be made and confirmed in writing in a Change Order or a ULCO.

11.1.2 It is recognized by the parties hereto and agreed by them that the Specifications and Drawings may not be complete or free from errors, omissions and imperfections or that they may require changes or additions in order for the Work to be completed to the satisfaction of Owner and that, accordingly, it is the express intention of the parties, notwithstanding any other provisions in this Contract, that any errors, omissions or imperfections in such Specifications and Drawings, or any changes in or additions to same or to the Work ordered by Owner and any resulting delays in the Work or increases in Contractor's costs and expenses arising out of such errors, shall not constitute or give rise to any claim, demand or cause of action of any nature whatsoever in favor of Contractor, whether for breach of Contract, or otherwise; provided, however, that Owner shall be liable to Contractor for the

sum stated to be due Contractor in any Change Order approved and signed by both parties, it being agreed hereby that such sum, together with any extension of time contained in said Change Order, shall constitute full compensation to Contractor for all costs, expenses and damages to Contractor, as permitted under Tex. Gov't Code, Ch. 2260.

11.1.3 Procedures for administration of Change Orders shall be established by Owner and stated in Supplementary General Conditions, Special Conditions, or elsewhere in the Contract Documents.

11.1.4 No verbal order, verbal statement, or verbal direction of Owner or his duly appointed representative shall be treated as a change under this article or entitle Contractor to an adjustment.

11.1.5 Contractor agrees that Owner or any of its duly authorized representatives shall have access and the right to examine any directly pertinent books, documents, papers, and records of Contractor. Further, Contractor agrees to include in all its subcontracts a provision to the effect that Subcontractor agrees that Owner or any of its duly authorized representatives shall have access to and the right to examine any directly pertinent books, documents, papers and records of such Subcontractor relating to any claim arising from the Contract, whether or not the Subcontractor is a party to the claim. The period of access and examination described herein which relates to appeals under the Disputes article of the Contract, litigation, or the settlement of claims arising out of the performance of the Contract shall continue until final disposition of such claims, appeals or litigation.

11.2 Unit Prices. If unit prices are stated in the Contract Documents or subsequently agreed upon, and if the quantities originally contemplated are so changed in a Proposed Change Order that application of the agreed unit prices to the quantities of work proposed will cause substantial inequity to Owner or Contractor, the applicable unit prices shall be equitably adjusted as provided in the Supplementary General Conditions or Special Conditions or as agreed to by the parties and incorporated into a Change Order.

11.3 Claims for Additional Costs.

11.3.1 If Contractor wishes to make a claim for an increase in the Contract Sum not related to a requested change, they shall give Owner and A/E written notice thereof within twenty-one (21) days after the occurrence of the event giving rise to such claim, but, in any case before proceeding to execute the Work considered to be additional cost or time, except in an emergency endangering life or property in which case Contractor shall act in accordance with Subsection 7.2.1. No such claim shall be valid unless so made. If Owner and Contractor cannot agree on the amount of the adjustment in the Contract Sum, it shall be determined as set forth under Article 15. Any change in the Contract Sum resulting from such claim shall be authorized by a Change Order or a ULCO.

11.3.2 If Contractor claims that additional cost is involved because of, but not limited to, 1) any written interpretation of the Contract Documents, 2) any order by Owner to stop the Work pursuant to Article 14 where Contractor was not at fault, or 3) any written order for a minor change in the Work issued pursuant to Section 11.4, Contractor shall make such claim as provided in Subsection 11.3.1.

11.3.3 Should Contractor or his Subcontractors fail to call attention of A/E to discrepancies or omissions in the Contract Documents, but claim additional costs for corrective Work after Contract award, Owner may assume intent to circumvent competitive bidding for necessary corrective Work. In such case, Owner may choose to let a separate Contract for the corrective Work, or issue a ULCO to require performance by Contractor. Claims for time extensions or for extra cost resulting from delayed notice of patent Contract Document discrepancies or omissions will not be considered by Owner.

11.4 Minor Changes. A/E, with concurrence of ODR, will have authority to order minor changes in the Work not involving an adjustment in the Contract Sum or an extension of the Contract Time. Such changes shall be effected by written order which Contractor shall carry out promptly and record on as-built record documents.

11.5 Concealed Site Conditions. Contractor is responsible for visiting the Site and being familiar with local conditions such as the location, accessibility, and general character of the Site and/or building. If, in the performance of the Contract, subsurface, latent, or concealed conditions at the Site are found to be materially different from the information included in the Contract Documents, or if unknown conditions of an unusual nature are disclosed differing materially from the conditions usually inherent in Work of the character shown and specified, ODR and A/E shall be notified in writing of such conditions before they are further disturbed or subsequent related work proceeds. Upon such notice, or upon its own observation of such conditions, A/E, with the approval of ODR, will promptly make such changes in the Drawings and Specifications as they deem necessary to conform to the different conditions, and any increase or decrease in the cost of the Work, or in the time within which the Work is to be completed, resulting from such changes will be adjusted by Change Order, subject to the prior approval of ODR.

11.6 Extension of Time. All changes to the Contract Time shall be made as a consequence of requests as required under Section 9.6, and as documented by Change Order as provided under Section 11.1.

11.7 Administration of Change Order Requests. All changes in the Contract shall be administered in accordance with procedures approved by Owner, and when required, make use of such electronic information management system(s) as Owner may employ.

11.7.1 Routine changes in the construction Contract shall be formally initiated by A/E by means of a PCO form detailing requirements of the proposed change for pricing by Contractor. This action may be preceded by communications

between Contractor, A/E and ODR concerning the need and nature of the change, but such communications shall not constitute a basis for beginning the proposed Work by Contractor. Except for emergency conditions described below, approval of Contractor's cost proposal by A/E and ODR will be required for authorization to proceed with the Work being changed. Owner will not be responsible for the cost of Work changed without prior approval and Contractor may be required to remove Work so installed.

11.7.2 All proposed costs for change order Work must be supported by itemized accounting of material, equipment and associated itemized installation costs in sufficient detail, following the outline and organization of the establish Schedule of Values, to permit analysis by A/E and ODR using current estimating guides and/or practices. Photocopies of Subcontractor and vendor proposals shall be furnished unless specifically waived by ODR. Contractor shall provide written response to a change request within twenty-one (21) days of receipt.

11.7.3 Any unexpected circumstance which necessitates an immediate change in order to avoid a delay in progress of the Work may be expedited by verbal communication and authorization between Contractor and Owner, with written confirmation following within twenty-four (24) hours. A limited scope not-to-exceed estimate of cost and time will be requested prior to authorizing Work to proceed. Should the estimate be impractical for any reason, ODR may authorize the use of detailed cost records of such work to establish and confirm the actual costs and time for documentation in a formal Change Order.

11.7.4 Emergency changes to save life or property may be initiated by Contractor alone (see Section 7.3) with the claimed cost and/or time of such work to be fully documented as to necessity and detail of the reported costs and/or time.

11.7.5 The method of incorporating approved Change Orders into the parameters of the accepted Schedule of Values must be coordinated and administered in a manner acceptable to ODR.

11.8 Pricing Change Order Work. The amounts that Contractor and/or its Subcontractor adds to a Change Order for profit and overhead will also be considered by Owner before approval is given. The amounts established hereinafter are the maximums that are acceptable to Owner.

11.8.1 For Work performed by its forces, Contractor will be allowed their actual costs for materials, the total amount of wages (including benefits) paid for labor, plus the total cost of State and Federal payroll taxes and of worker's compensation and comprehensive general liability insurance, plus additional bond and builders risk insurance cost if the change results in an increase in the premium paid by Contractor. To the total of the above costs, Contractor will be allowed to add a percentage as noted below to cover overhead and profit combined. Allowable percentages for overhead and profit on any specific change shall not exceed fifteen (15) percent for the first $10,000 of

value for self-performed work or portion thereof, ten (10) percent for the second $10,000 of value for self-performed work or portion thereof and seven and a half (7.5) percent for any value of the self-performed work that exceeds $20,000.

11.8.2 For subcontracted Work each affected Subcontractor shall figure its costs, overhead and profit as described above for Contractor's Work, all Subcontractor costs shall be combined, and to that total Subcontractor cost Contractor will be allowed to add a maximum mark-up of ten (10) percent for the first $10,000 of subcontracted Work value or portion thereof, seven and half (7.5) percent for the second $10,000 of subcontracted Work value or portion thereof, and five (5) percent for any value of the subcontracted Work exceeding $20,000.

11.8.3 On changes involving both additions and deletions, percentages for overhead and profit will be allowed only on the net addition. Owner does not accept and will not pay for additional Contract cost identified as indirect or consequential damages.

11.8.4 For Contracts based on a Guaranteed Maximum Price (GMP), the Construction Manager-at-Risk or Design Builder shall NOT be entitled to a percentage mark-up on any Change Order Work unless the Change Order increases the Guaranteed Maximum Price.

11.9 Unilateral Change Order (ULCO). Owner may issue a written ULCO directing a change in the Work prior to reaching agreement with Contractor on the adjustment, if any, in the Contract price and/or the Contract Time.

11.9.1 Owner and Contractor shall negotiate for appropriate adjustments, as applicable, to the Contract Sum or the Contract Time arising out of a ULCO. As the changed Work is performed, Contractor shall submit its costs for such Work with its Application for Payment beginning with the next Application for Payment within thirty (30) days of the issuance of the ULCO. The Parties reserve their rights as to the disputed amount, subject to Article 15.

11.10 Final Resolution of Changes. Upon execution of a Change Order and /or a ULCO by Owner, Contractor and A/E, all costs and time issues regarding that change are final and not subject to additive adjustments.

Article 12. Project Completion and Acceptance

12.1 Closing Inspections.

12.1.1 Substantial Completion Inspection. When Contractor considers the entire Work or part thereof Substantially Complete, it shall notify ODR in writing that the Work will be ready for Substantial Completion inspection on a specific date. Contractor shall include with this notice Contractor's Punchlist to indicate that it has previously inspected all the Work associated with the request for inspection, noting items it has corrected and included all remaining

work items with date scheduled for completion or correction prior to final inspection. The failure to include any items on this list does not alter the responsibility of Contractor to complete all Work in accordance with the Contract Documents. If any of the items on this list prevents the Project from being used as intended, Contractor shall not request a Substantial Completion Inspection. Owner and its representatives will review the list of items and schedule the requested inspection, or inform Contractor in writing that such an inspection is premature because the Work is not sufficiently advanced or conditions are not as represented on Contractor's list.

12.1.1.1 Prior to the Substantial Completion inspection, Contractor shall furnish a copy of its marked-up Record Documents and a preliminary copy of each instructional manual, maintenance and operating manual, parts catalog, wiring diagrams, spare parts, specified written warranties, and like publications or parts for all installed equipment, systems, and like items as described in the Contract Documents. Delivery of these items is a prerequisite for requesting the Substantial Completion inspection.

12.1.1.2 On the date requested by Contractor, or as mutually agreed upon pending the status of the Open Items List, A/E, ODR, Contractor, and other Owner representatives as determined by Owner will jointly attend the Substantial Completion inspection, which shall be conducted by ODR or their delegate. If ODR determines that the Work is Substantially Complete, ODR will issue a Certificate of Substantial Completion to be signed by A/E, Owner, and Contractor establishing the date of Substantial Completion and identifying responsibilities for security, maintenance, insurance and utilities. A/E will provide with this certificate a consolidated list of Punchlist items (the pre-final Punchlist including all items noted by the various inspecting parties) for completion prior to final inspection. This list may include items in addition to those on Contractor's Punchlist, which the inspection team deems necessary to correct or complete prior to final inspection. The failure to include any items on this list does not alter the responsibility of Contractor to complete all Work in accordance with the Contract Documents. If Owner occupies the Project upon determination of Substantial Completion, Contractor shall complete all corrective Work at the convenience of Owner, without disruption to Owner's use of the Project for its intended purposes.

12.1.2 Final Inspection. Contractor shall complete the list of items identified on the pre-final Punchlist prior to requesting a final inspection. Unless otherwise specified, or otherwise agreed in writing by the parties as documented on the Certificate of Substantial Completion, Contractor shall complete and/or correct all Work within thirty (30) days of the Substantial Completion date. Upon completion of the pre-final Punchlist work, Contractor shall give written notice to ODR and A/E that the Work will be ready for final inspection on a specific date. Contractor shall accompany this notice

with a copy of the updated pre-final Punchlist indicating resolution of all items. On the date specified or as soon thereafter as is practicable, ODR, A/E and Contractor will inspect the Work. A/E will submit to Contractor a final Punchlist of open items that the inspection team requires corrected or completed before final acceptance of the Work.

12.1.2.1 Correct or complete all items on the final Punchlist before requesting Final Payment. Unless otherwise agreed to in writing by the parties, complete this work within seven (7) days of receiving the final Punchlist. Upon completion of the final Punchlist, notify A/E and ODR in writing stating the disposition of each final Punchlist item. A/E, Owner, and Contractor shall promptly inspect the completed items. When the final Punchlist is complete, and the Contract is fully satisfied according to the Contract Documents ODR will issue a certificate establishing the date of Final Completion. Completion of all Work is a condition precedent to Contractor's right to receive Final Payment.

12.1.3 Annotation. Any Certificate issued under this Article may be annotated to indicate that it is not applicable to specified portions of the Work, or that it is subject to any limitation as determined by Owner.

12.1.4 Purpose of Inspection. Inspection is for determining the completion of the Work, and does not relieve Contractor of its overall responsibility for completing the Work in a good and competent fashion, in compliance with the Contract. Work accepted with incomplete Punchlist items or failure of Owner or other parties to identify Work that does not comply with the Contract Documents or is defective in operation or workmanship does not constitute a waiver of Owner's rights under the Contract or relieve Contractor of its responsibility for performance or warranties.

12.1.5 Additional Inspections.

12.1.5.1 If Owner's inspection team determines that the Work is not substantially complete at the Substantial Completion inspection, ODR or A/E will give Contractor written notice listing cause(s) of the rejection. Contractor will set a time for completion of incomplete or defective work acceptable to ODR. Contractor shall complete or correct all work so designated prior to requesting a second Substantial Completion inspection.

12.1.5.2 If Owner's inspection team determines that the Work is not complete at the final inspection, ODR or A/E will give Contractor written notice listing the cause(s) of the rejection. Contractor will set a time for completion of incomplete or defective work acceptable to ODR. Contractor shall complete or correct all Work so designated prior to again requesting a final inspection.

12.1.5.3 The Contract contemplates three (3) comprehensive inspections: the Substantial Completion inspection, the Final Completion inspection, and the inspection of completed final Punchlist items. The cost to Owner of additional inspections resulting from the Work not being ready for one or more of these inspections is the responsibility of Contractor. Owner may issue a ULCO deducting these costs from Final Payment. Upon Contractor's written request, Owner will furnish documentation of any costs so deducted. Work added to the Contract by Change Order after Substantial Completion inspection is not corrective Work for purposes of determining timely completion, or assessing the cost of additional inspections.

12.1.6 Phased Completion. The Contract may provide, or Project conditions may warrant, as determined by ODR, that designated elements or parts of the Work be completed in phases. Where phased completion is required or specifically agreed to by the parties, the provisions of the Contract related to closing inspections, occupancy, and acceptance apply independently to each designated element or part of the Work. For all other purposes, unless otherwise agreed by the parties in writing, Substantial Completion of the Work as a whole is the date on which the last element or part of the Work completed receives a Substantial Completion certificate.

Final Completion of the Work as a whole is the date on which the last element or part of the Work completed receives a Final Completion certificate.

12.2 Owner's Right of Occupancy. Owner may occupy or use all or any portion of the Work following Substantial Completion, or at any earlier stage of completion. Should Owner wish to use or occupy the Work, or part thereof, prior to Substantial Completion, ODR will notify Contractor in writing and identify responsibilities for security, maintenance, insurance and utilities. Work performed on the premises by third parties on Owner's behalf does not constitute occupation or use of the Work by Owner for purposes of this Article. All Work performed by Contractor after occupancy, whether in part or in whole, shall be at the convenience of Owner so as to not disrupt Owner's use of, or access to occupied areas of the Project.

12.3 Acceptance and Payment

12.3.1 Request for Final Payment. Following the certified completion of all work, including all final Punchlist items, cleanup, and the delivery of record documents, Contractor shall submit a certified Application for Final Payment and include all sums held as retainage and forward to A/E and ODR for review and approval.

12.3.2 Final Payment Documentation. Contractor shall submit, prior to or with the Application for Final Payment, final copies of all close out documents, maintenance and operating instructions, guarantees and warranties, certificates, Record Documents and all other items required by the Contract.

Contractor shall submit evidence of return of access keys and cards, evidence of delivery to Owner of attic stock, spare parts, and other specified materials. Contractor shall submit consent of surety to Final Payment form and an affidavit that all payrolls, bills for materials and equipment, subcontracted work and other indebtedness connected with the Work, except as specifically noted, are paid, will be paid, after payment from Owner or otherwise satisfied within the period of time required by Tex. Gov't Code, Ch. 2251. Contractor shall furnish documentation establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of claims and liens arising out of the Contract. Contractor may not subsequently submit a claim on behalf of Subcontractor or vendor unless Contractor's affidavit notes that claim as an exception.

12.3.3 Architect/Engineer Approval. A/E will review a submitted Application for Final Payment promptly but in no event later than ten (10) days after its receipt. Prior to the expiration of this deadline, A/E will either: 1) return the Application for Final Payment to Contractor with corrections for action and resubmission; or 2) accept it, note their approval, and send to Owner.

12.3.4 Offsets and Deductions. Owner may deduct from the Final Payment all sums due from Contractor. If the Certificate of Final Completion notes any Work remaining, incomplete, or defects not remedied, Owner may deduct the cost of remedying such deficiencies from the Final Payment. On such deductions, Owner will identify each deduction, the amount, and the explanation of the deduction on or by the twenty-first (21^{st}) day after Owner's receipt of an approved Application for Final Payment. Such offsets and deductions shall be incorporated via a final Change Order, including a ULCO as may be applicable.

12.3.5 Final Payment Due. Final Payment is due and payable by Owner, subject to all allowable offsets and deductions, on the thirtieth (30^{th}) day following Owner's approval of the Application for Payment. If Contractor disputes any amount deducted by Owner, Contractor shall give notice of the dispute on or before the thirtieth (30^{th}) day following receipt of Final Payment. Failure to do so will bar any subsequent claim for payment of amounts deducted.

12.3.6 Effect of Final Payment. Final Payment constitutes a waiver of all claims by Owner, relating to the condition of the Work except those arising from:

12.3.6.1 Faulty or defective Work appearing after Substantial Completion (latent defects);

12.3.6.2 Failure of the Work to comply with the requirements of the Contract Documents;

12.3.6.3 Terms of any warranties required by the Contract, or implied by law; or

12.3.6.4 Claims arising from personal injury or property damage to third parties.

12.3.7 Waiver of Claims. Final payment constitutes a waiver of all claims and liens by Contractor except those specifically identified in writing and submitted to ODR prior to the application for Final Payment.

12.3.8 Effect on Warranty. Regardless of approval and issuance of Final Payment, the Contract is not deemed fully performed by Contractor and closed until the expiration of all warranty periods. Issuance of Final Payment does not alter Contractor's contractual obligations during the warranty period.

Article 13. Warranty and Guarantee

13.1 Contractor's General Warranty and Guarantee. Contractor warrants to Owner that all Work is executed in accordance with the Contract, complete in all parts and in accordance with approved practices and customs, and of the required finish and workmanship. Contractor further warrants that unless otherwise specified, all materials and equipment incorporated in the Work under the Contract are new. Owner may, at its option, agree in writing to waive any failure of the Work to conform to the Contract, and to accept a reduction in the Contract price for the cost of repair or diminution in value of the Work by reason of such defect. Absent such a written agreement, Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute and is not waived by any inspection or observation by Owner, A/E or others, by making any progress payment or final payment, by the use or occupancy of the Work or any portion thereof by Owner, at any time, or by any repair or correction of such defect made by Owner.

13.2 Warranty Period. Except as may be otherwise specified or agreed, Contractor shall repair all defects in materials, equipment, or workmanship appearing within one year from the date of Substantial Completion of the Work. If Substantial Completion occurs by phase, then the warranty period for that particular Work begins on the date of such occurrence, or as otherwise stipulated on the Certificate of Substantial Completion for the particular Work.

13.3 Limits on Warranty. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

13.3.1 Modification or improper maintenance or operation by persons other than Contractor, Subcontractors, or any other individual or entity for whom Contractor is not responsible, unless Owner is compelled to undertake maintenance or operation due to the neglect of Contractor.

13.3.2 Normal wear and tear under normal usage after acceptance of the Work by Owner.

13.4 Events Not Affecting Warranty. Contractor's obligation to perform and complete the Work in a good and workmanlike manner in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of defective Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

13.4.1 Observations by Owner and/or A/E;

13.4.2 Recommendation to pay any progress or final payment by A/E;

13.4.3 The issuance of a certificate of Substantial Completion or any payment by Owner to Contractor under the Contract Documents;

13.4.4 Use or occupancy of the Work or any part thereof by Owner**;**

13.4.5 Any acceptance by Owner or any failure to do so;

13.4.6 Any review of a Shop Drawing or sample submittal; or

13.4.7 Any inspection, test or approval by others.

13.5 Separate Warranties. If a particular piece of equipment or component of the Work for which the Contract requires a separate warranty is placed in continuous service before Substantial Completion, the warranty period for that equipment or component will not begin until Substantial Completion, regardless of any warranty agreements in place between suppliers and/or Subcontractors and Contractor. ODR will certify the date of service commencement in the Substantial Completion certificate.

13.5.1 In addition to Contractor's warranty and duty to repair, Contractor expressly assumes all warranty obligations required under the Contract for specific building components, systems and equipment.

13.5.2 Contractor may satisfy any such obligation by obtaining and assigning to Owner a complying warranty from a manufacturer, supplier, or Subcontractor. Where an assigned warranty is tendered and accepted by Owner which does not fully comply with the requirements of the Contract, Contractor remains liable to Owner on all elements of the required warranty not provided by the assigned warranty.

13.6 Correction of Defects. Upon receipt of written notice from Owner, or any agent of Owner designated as responsible for management of the warranty period, of the discovery of a defect, Contractor shall promptly remedy the defect(s), and provide written notice to Owner and designated agent indicating action taken. In case of emergency where delay would cause serious risk of loss or damage to Owner, or if Contractor fails to remedy within thirty (30) days, or within another period agreed to in writing, Owner may correct the defect and be reimbursed the cost of remedying the defect from Contractor or its surety.

13.7 Certification of No Asbestos Containing Materials or Work. Contractor shall ensure compliance with the Asbestos Hazard Emergency Response Act (AHERA– 40 C.F.R § 763-99(7)) from all Subcontractors and materials suppliers, and shall provide a notarized certification to Owner that all equipment and materials used in fulfillment of their Contract responsibilities are non-Asbestos Containing Building Materials (ACBM). This certification must be provided no later than Contractor's application for Final Payment.

Article 14. Suspension and Termination

14.1 Suspension of Work for Cause. Owner may, at any time without prior notice, suspend all or any part of the Work, if after reasonable observation and/or investigation, Owner determines it is necessary to do so to prevent or correct any condition of the Work, which constitutes an immediate safety hazard, or which may reasonably be expected to impair the integrity, usefulness or longevity of the Work when completed.

14.1.1 Owner will give Contractor a written notice of suspension for cause, setting forth the reason for the suspension and identifying the Work suspended. Upon receipt of such notice, Contractor shall immediately stop the Work so identified. As soon as practicable following the issuance of such a notice, Owner will initiate and complete a further investigation of the circumstances giving rise to the suspension, and issue a written determination of the findings.

14.1.2 If it is confirmed that the cause was within the control of Contractor, Contractor will not be entitled to an extension of time or any compensation for delay resulting from the suspension. If the cause is determined not to have been within the control of Contractor, and the suspension has prevented Contractor from completing the Work within the Contract Time, the suspension is an excusable delay and a time extension will be granted through a Change Order.

14.1.3 Suspension of Work under this provision will be no longer than is reasonably necessary to remedy the conditions giving rise to the suspension.

14.2 Suspension of Work for Owner's Convenience. Upon seven (7) days written notice to Contractor, Owner may at any time without breach of the Contract suspend all or any portion of the Work for a period of up to thirty (30) days for its own convenience. Owner will give Contractor a written notice of suspension for convenience, which sets forth the number of suspension days for which the Work, or any portion of it, and the date on which the suspension of Work will cease. When such a suspension prevents Contractor from completing the Work within the Contract Time, it is an excusable delay. A notice of suspension for convenience may be modified by Owner at any time on seven (7) days written notice to Contractor. If Owner suspends the Work for its convenience for more than sixty (60) consecutive days, Contractor may elect to terminate the Contract pursuant to the provisions of the Contract.

14.3 Termination by Owner for Cause.

14.3.1 Upon written notice to Contractor and its surety, Owner may, without prejudice to any right or remedy, terminate the Contract and take possession of the Site and of all materials, equipment, tools, construction equipment, and machinery thereon owned by Contractor under any of the following circumstances:

14.3.1.1 Persistent or repeated failure or refusal, except during complete or partial suspensions of work authorized under the Contract, to supply enough properly skilled workmen or proper materials;

14.3.1.2 Persistent disregard of laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, including ODR;

14.3.1.3 Persistent failure to prosecute the Work in accordance with the Contract, and to ensure its completion within the time, or any approved extension thereof, specified in the Contract;

14.3.1.4 Failure to remedy defective work condemned by ODR;

14.3.1.5 Failure to pay Subcontractors, laborers, and material suppliers pursuant to Tex. Gov't Code, Ch. 2251;

14.3.1.6 Persistent endangerment to the safety of labor or of the Work;

14.3.1.7 Failure to supply or maintain statutory bonds or to maintain required insurance, pursuant to the Contract;

14.3.1.8 Any material breach of the Contract; or

14.3.1.9 Contractor's insolvency, bankruptcy, or demonstrated financial inability to perform the Work.

14.3.2 Failure by Owner to exercise the right to terminate in any instance is not a waiver of the right to do so in any other instance.

14.3.3 Should Owner decide to terminate the Contract under the provisions of Section 14.3, it will provide to Contractor and its surety thirty (30) days prior written notice.

14.3.4 Should Contractor or its surety, after having received notice of termination, demonstrate to the satisfaction of Owner that Contractor or its surety are proceeding to correct such default with diligence and promptness, upon which the notice of termination was based, the notice of termination may be rescinded in writing by Owner. If so rescinded, the Work may continue without an extension of time.

14.3.5 If Contractor or its surety fails, after written notice from Owner to commence and continue correction of such default with diligence and promptness to the satisfaction of Owner within thirty (30) days following receipt of notice, Owner may arrange for completion of the Work and deduct the cost of completion from the unpaid Contract Sum.

14.3.5.1 This amount includes the cost of additional Owner costs such as A/E services, other consultants, and contract administration.

14.3.5.2 Owner will make no further payment to Contractor or its surety unless the costs to complete the Work are less than the Contract balance, then the difference shall be paid to Contractor or its surety. If such costs exceed the unpaid balance, Contractor or its surety will pay the difference to Owner.

14.3.5.3 This obligation for payment survives the termination of the Contract.

14.3.5.4 Owner reserves the right in termination for cause to take assignment of all the Contracts between Contractor and its Subcontractors, vendors, and suppliers. ODR will promptly notify Contractor of the contracts Owner elects to assume. Upon receipt of such notice, Contractor shall promptly take all steps necessary to effect such assignment.

14.4 Conversion to Termination for Convenience. In the event that any termination of Contractor for cause under Section 14.3 is later determined to have been improper, the termination shall automatically convert to a termination for convenience under Section 14.5 and Contractor's recovery for termination shall be strictly limited to the payments allowable under Section 14.5.

14.5 Termination for Convenience of Owner. Owner reserves the right, without breach, to terminate the Contract prior to, or during the performance of the Work, for any reason. Upon such an occurrence, the following shall apply:

14.5.1 Owner will immediately notify Contractor and A/E in writing, specifying the reason for and the effective date of the Contract termination. Such notice may also contain instructions necessary for the protection, storage or decommissioning of incomplete work or systems, and for safety.

14.5.2 Upon receipt of the notice of termination, Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due at that point in the Contract:

14.5.2.1 Stop all work.

14.5.2.2 Place no further subcontracts or orders for materials or services.

14.5.2.3 Terminate all subcontracts for convenience.

14.5.2.4 Cancel all materials and equipment orders as applicable.

14.5.2.5 Take action that is necessary to protect and preserve all property related to the Contract which is in the possession of Contractor.

14.5.3 When the Contract is terminated for Owner's convenience, Contractor may recover from Owner payment for all Work executed. Contractor may not claim lost profits on other work or lost business opportunities.

14.6 Termination By Contractor. If the Work is stopped for a period of ninety (90) days under an order of any court or other public authority having jurisdiction, or as a result of an act of government, such as a declaration of a national emergency making materials unavailable, through no act or fault of Contractor or Subcontractor or their agents or employees or any other persons performing any of the Work under a contract with Contractor, then Contractor may, upon thirty (30) additional days written notice to ODR, terminate the Contract and recover from Owner payment for all Work executed, but not lost profits on other work or lost business opportunities. If the cause of the Work stoppage is removed prior to the end of the thirty (30) day notice period, Contractor may not terminate the Contract.

14.7 Settlement on Termination. When the Contract is terminated for any reason, at any time prior to one hundred eighty (180) days after the effective date of termination, Contractor shall submit a final termination settlement proposal to Owner based upon recoverable costs as provided under the Contract. If Contractor fails to submit the proposal within the time allowed, Owner may determine the amount due to Contractor because of the termination and pay the determined amount to Contractor.

Article 15. Dispute Resolution

15.1 Unresolved Contractor Disputes. The dispute resolution process provided for in Tex. Gov't Code, Ch. 2260 or Tex. Civ. Prac. & Rem. Code, Ch. 114, shall be used by Contractor to attempt to resolve any claim for breach of Contract made by Contractor that is not resolved under procedures described throughout the Uniform General Conditions, Supplementary Conditions, or Special Conditions of the Contract.

15.2 Alternative Dispute Resolution Process. Owner may establish a dispute resolution process to be utilized in advance of that outlined in Tex. Gov't Code, Ch. 2260 or Tex. Civ. Prac. & Rem. Code, Ch. 114.

15.3 Nothing herein shall hinder, prevent, or be construed as a waiver of Owner's right to seek redress on any disputed matter in a court of competent jurisdiction.

15.4 Nothing herein shall waive or be construed as a waiver of the State's sovereign immunity.

Article 16. Miscellaneous

16.1 Supplementary General and Special Conditions. When the Work contemplated by Owner is of such a character that the foregoing Uniform General Conditions of the Contract cannot adequately cover necessary and additional contractual relationships, the Contract may include Supplementary General and Special Conditions as described below:

16.1.1 Supplementary General Conditions may describe the standard procedures and requirements of contract administration followed by a contracting agency of the State. Supplementary General Conditions may expand upon matters covered by the Uniform General Conditions, where necessary, provided the expansion does not weaken the character or intent of the Uniform General Conditions. Supplementary General Conditions are of such a character that it is to be anticipated that a contracting agency of the State will normally use the same, or similar, conditions to supplement each of its several projects.

16.1.2 Special Conditions shall relate to a particular Project and be unique to that Project but shall not weaken the character or intent of the Uniform General Conditions.

16.2 Federally Funded Projects. On Federally funded projects, Owner may waive, suspend or modify any Article in these Uniform General Conditions which conflicts with any Federal statue, rule, regulation or procedure, where such waiver, suspension or modification is essential to receipt by Owner of such Federal funds for the Project. In the case of any Project wholly financed by Federal funds, any standards required by the enabling Federal statute, or any Federal rules, regulations or procedures adopted pursuant thereto, shall be controlling.

16.3 Internet-based Project Management Systems. At its option, Owner may administer its design and construction management through an Internet-based management system. In such cases, Contractor shall conduct communication through this media and perform all Project related functions utilizing this database system. This includes correspondence, submittals, Requests for Information, vouchers or payment requests and processing, amendment, Change Orders and other administrative activities.

16.3.1 Accessibility and Administration.

16.3.1.1 When used, Owner will make the software accessible via the Internet to all Project team members.

16.3.1.2 Owner shall administer the software.

16.3.2 Training. When used, Owner shall provide training to the Project team members.

16.4 Administrative Inspections and Audits. Contractor agrees that all relevant records related to this Contract or any work product under this Contract, including practices of its Subcontractors, shall be subject, at any reasonable time, to inspection, examination, review, audit, and copying at any office or location of Contractor where such records

may be found, with or without notice by the Texas State Auditor's Office ("SAO"), the contracting agency or its contracted examiners, or the Office of the Texas Attorney General, and with regard to any federal funding, the relevant federal agency, the Comptroller General, the General Accounting Office, the Office of the Inspector General, or any of their authorized representatives. All Subcontracts shall reflect the requirements of this section. In addition, pursuant to Tex. Gov't Code§ 2262.003 the SAO may conduct an audit or investigation of any entity receiving funds under this Contract, including direct payments to Contractor and indirect payments under a Subcontract to this Contract; acceptance of such monies acts as acceptance of SAO authority, under legislative audit committee direction, to audit and investigate related to those funds and the entity subject to the audit or investigation must provide SAO with access to any information SAO considers relevant to the scope of the audit or investigation.

End of Uniform General Conditions

00 73 00 – SUPPLEMENTARY CONDITIONS

The State of Texas Supplemental General Conditions, 2015 are available online here:

- http://www.tfc.state.tx.us/divisions/facilities/prog/construct/formsindex/Supp%20Gen%20Cond%202015.pdf

END OF SECTION

SUPPLEMENTARY GENERAL CONDITIONS
TO THE STATE OF TEXAS 2015 EDITION OF THE UNIFORM GENERAL CONDITIONS FOR CONSTRUCTION CONTRACTS

The following Supplementary General Conditions amend and/or supplement the 2015 edition of the Uniform General Conditions for Construction Contracts.

Article 5. Bonds and Insurance

5.2 Insurance Requirements.

Subsection 5.2.4 is supplemented to add the following new paragraphs:

5.2.4.1 Contractor shall deliver to Owner true and complete copies of the General Contractor's certificates prior to the issuance of any Notice to Proceed.

5.2.4.2 Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

5.2.4.3 The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.2.4.4 The insurance coverage and limits established in the Uniform General Conditions, Supplementary General Conditions, or Special Conditions shall not be interpreted as any representation or warranty that the insurance coverage and limits necessarily will be adequate to protect Contractor.

End of Supplementary General Conditions

Special General Conditions to the State of Texas 2010 Edition of the Uniform General Conditions for Construction Contracts

22.2 Page 6, Article 2, Item 2.2.1.2 add new Subparagraph 2.2.1.2.1:
2.2.1.2.1: Owner's Prevailing Wage Schedule will be defined by the Davis-Bacon Wage Determinations attached hereto.

END OF SECTION

"General Decision Number: TX20200271 09/11/2020

Superseded General Decision Number: TX20190271

State: Texas

Construction Type: Building

County: Travis County in Texas.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020
1	02/14/2020
2	09/11/2020

ASBE0087-014 01/01/2018

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (Duct, Pipe and Mechanical System Insulation)	$ 22.72	10.02

BOIL0074-003 01/01/2017

	Rates	Fringes
BOILERMAKER	$ 28.00	22.35

CARP1266-002 04/01/2017

	Rates	Fringes
CARPENTER (Excludes Acoustical Ceiling Installation, Drywall Hanging, Form Work, and Metal Stud Installation)	$ 21.96	7.90

ELEC0520-005 01/01/2020

	Rates	Fringes
ELECTRICIAN		
Excludes Installation of Sound and Communication Systems	$ 29.44	11%+5.73
Low Voltage Wiring Only	$ 29.44	11%+5.73

ELEV0133-002 01/01/2020

	Rates	Fringes
ELEVATOR MECHANIC	$ 42.30	34.765

Footnote:

A. 6% under 5 years based on regular hourly rate for all hours worked. 8% over 5 years based on regular hourly rate for all hours worked.

B. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and Veterans Day.

ENGI0450-002 04/01/2014

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
Cranes	$ 34.85	9.85

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* IRON0084-011 06/01/2020

	Rates	Fringes
IRONWORKER, ORNAMENTAL	$ 25.26	7.13

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* PLUM0286-010 06/01/2020

	Rates	Fringes
PIPEFITTER (Including HVAC Pipe Installation)	$ 31.00	14.37

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* SFTX0669-002 04/01/2020

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers)	$ 30.64	21.68

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* SHEE0067-007 07/06/2020

	Rates	Fringes
SHEET METAL WORKER		
Excludes HVAC Duct Installation	$ 27.29	15.08
HVAC Duct Installation Only	$ 27.29	15.08

SUTX2014-049 07/21/2014

	Rates	Fringes
BRICKLAYER	$ 20.07	0.00
CARPENTER (Acoustical Ceiling Installation Only)	$ 14.00	0.00
CARPENTER (Form Work Only)	$ 15.62	0.05
CEMENT MASON/CONCRETE FINISHER	$ 15.71	0.00
DRYWALL FINISHER/TAPER	$ 17.06	4.43
DRYWALL HANGER AND METAL STUD INSTALLER	$ 17.47	3.45
ELECTRICAL INSTALLER (Sound and Communication Systems) (Excludes Wiring)	$ 18.00	2.30
FLOOR LAYER: Carpet	$ 21.88	0.00
GLAZIER	$ 12.83	0.00
HVAC MECHANIC (HVAC Unit Installation Only)	$ 23.78	6.89
IRONWORKER, REINFORCING	$ 12.27	0.00

IRONWORKER, STRUCTURAL.....$ 20.73 5.24

LABORER: Common or General.....$ 11.44 0.00

LABORER: Mason Tender - Brick...$ 12.22 0.00

LABORER: Mason Tender - Cement/Concrete.....$ 11.85 0.00

LABORER: Pipelayer.....$ 12.45 0.00

LABORER: Roof Tearoff.....$ 11.28 0.00

OPERATOR: Backhoe/Excavator/Trackhoe.....$ 19.43 3.49

OPERATOR: Bobcat/Skid Steer/Skid Loader.....$ 13.00 0.00

OPERATOR: Bulldozer.....$ 14.00 0.00

OPERATOR: Drill.....$ 14.50 0.00

OPERATOR: Forklift.....$ 16.64 6.26

OPERATOR: Grader/Blade.....$ 19.30 0.00

OPERATOR: Loader.....$ 14.00 0.00

OPERATOR: Mechanic.....$ 18.75 5.12

OPERATOR: Paver (Asphalt, Aggregate, and Concrete).....$ 16.03 0.00

OPERATOR: Roller.....$ 11.25 0.00

PAINTER (Brush, Roller and Spray), Excludes Drywall Finishing/Taping.....$ 18.76 6.35

PLUMBER, Excludes HVAC Pipe Installation.....$ 23.57 6.37

ROOFER.....$ 12.00 0.00

TILE FINISHER.....$ 11.32 0.00

TILE SETTER.....$ 16.35 0.00

TRUCK DRIVER: Dump Truck.....$ 12.39 1.18

TRUCK DRIVER: Flatbed Truck.....$ 19.65 8.57

TRUCK DRIVER: Semi-Trailer

Truck.....$ 12.50 0.00

TRUCK DRIVER: Water Truck.....$ 12.00 4.11

WATERPROOFER.....$ 16.30 0.06

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example:

PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

TEXAS STATE CEMETERY
OWNER'S REQUIREMENTS

The Texas State Cemetery has several unique conditions that the Contractor must be prepared to address within their proposal that must be covered by their fee:

1. No large construction equipment can be transported through the cemetery grounds; any special access for equipment must be requested and approved in advance.

2. Any construction vehicular access to the Cemetery must be coordinated in at least 24 hours in advance with the Operator. Delay in scheduling due to lack of notification shall be at Contractor's expense.

3. Unloading of large trucks shall happen at the lay-down area approved by the Owner through written request.

4. Maximum loading over the Extension is AASHTO H20. Note that the gate access from E 11th Street is limited due to the main entry gate. Construction vehicle access shall be from Navasota street and will be coordinated with the Operator to no disrupt Cemetery Activities.

5. Maximum loading on the walkway is 48,000 lbs. Weight distribution mats must be used when approaching this limit, to protect the decorative topping slab from cracking.

6. Contractors must be courteous to Cemetery staff and visitors whenever there is interaction.

7. All site use coordination must be through the State Preservation Board.

8. Contractor and construction personnel shall observe the following procedures:

    a. No smoking shall be permitted on site.
    b. Foods or beverages shall be consumed in areas designated by the Contractor.

9. No trash or flammable material storage of any type whatsoever shall be permitted inside the building or adjacent to the building inside the oval walk.

10. Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.

11. Confine constructions operations to area indicated on the Drawings.

12. Refer to the Construction Documents for access to the site and for staging and trailer locations. This project will require that dumpster and trailer locations be located along Navasota Street and street access be coordinated with the City of Austin. A temporary staging area can be setup within the property boundary when coordinated with the Owner.

13. The Owner reserves the right to occupy and to place and install equipment in completed areas of the buildings prior to Date of Substantial Completion provided that such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the total Work.

14. To assure audibility of fire alarms at all times and reduce noise, prohibit interior use of music players and individually controlled audio systems by construction personnel.

END OF SECTION

Standard Owner Requirements

For State Preservation Board Facilities Projects – Texas State Cemetery

October 2017

Please note: The term "Contractor" in this document refers to all general and sub-contractors, contractor employees and all temporary employees of SPB.

The following applies to ALL State Preservation Board Facilities Projects:

• **Schedule and Work Plan:** Prior to commencing work, Contractor must obtain approval from SPB of a schedule and work plan which demonstrates how the work will be accomplished in the allotted time and meet all requirements of the SPB.

• **Modifications to this document:** Changes to the requirements of this document may be approved by SPB after review and discussion of the Schedule and Work Plan, depending on the hardships in accomplishing the work presented by the Contractor. SPB may make additional expectations of the Contractor in response to changes in the scope of work occurring after the execution of this document.

• **Forced Delays:** SPB may stop the work temporarily at any time for any reason. Forced delays occur rarely when the Contractor's work is impacting government operations in a negative way (i.e. disrupting a meeting in a nearby building.)

• **Safety:** At all times while working on state property, Contractors must satisfy all safety requirements of OSHA and all other federal, state and local safety regulations. Contractors must provide a safe working environment within the designated work area. Contractors must utilize signage and caution tape to inhibit visitors and unauthorized personnel from entering the work area or crossing the pathway of vehicles entering or exiting the work area. Contractor must secure the work area to the extent possible at the end of each workday to prevent unauthorized access. Contractor must provide SPB 24-hour access to the site, including a key or combination to the lock on the work area gate. Contractors are advised that visitors are often present during the work and must be aware of visitors during any work performance.

• **Contractor Approval:** All Contractors must be approved by SPB to work on state property. In the event that a change in contractors is required during a project, new contractors must be approved by SPB.

• **Security Assessments:** All Contractors and employees who plan to work on state property are subject to full background checks and approval. The level of scrutiny will vary depending on the nature of the project and the specific location of the work. Contractors should be prepared to provide SPB with a list of all employees who they propose to work on the project. There is no implied guarantee that work access will be granted.

All employees are subject to screening upon entrance to the Cemetery.

Vehicular access to the Cemetery is controlled by the Operator and only accessible with proper credentials. Contractors must request vehicular access in writing to SPB at least 24 hours in advance of the requested access time. There is no implied guarantee that drive access will be granted.

• **Signage:** Contractor must provide all signs needed and maintain them throughout the project. Typically, signs must address the following issues:

-Define the boundaries of the Construction Area.
-Define required safety measures within Construction Area (i.e. hardhats, etc.)
-Prohibit unauthorized personnel inside the Construction Area.
-Delineate alternative accessible routes when existing routes are being blocked. (SPB will provide directives.)

In some cases, SPB may permit Contractors to also attach to the construction fence up to 2 copies of a Project Sign. Typically, Project Signs include a project title, graphic image of the completed project, name of the general contractor, etc. The design for all signs that include the name of any entity or person must be submitted to SPB for approval prior to fabrication or posting of the sign.

• **Parking:** The SPB is not responsible for providing Contractor parking. The Contractor’s personnel must park offsite in designated parking areas as to not limit daily Cemetery activities.

• **Smoking:** All state office buildings in the Cemetery are designated as smoke-free facilities. Smoking is also prohibited in the loading dock, garages, and all areas within 15 feet of any entrance or exit. Smoking is never allowed within the confines of the work area, even when the work area is considered exterior.

• **Food and Beverages:** Foods or beverages shall be consumed in areas designated by the Contractor.

• **Personal Behavior:** The use of headphones, speakers and audio equipment on the job site is prohibited. Contract employees must not use profanity nor wear clothing that contains inappropriate language or images while working on state property.

Contractors must be courteous to building occupants and visitors whenever there is interaction.

All coordination with building occupants, including Operator, must be through the State Preservation Board to maintain tracking of communications and continuity of coordination.

• **Wheeled Equipment:** All dollies, job boxes, hand trucks, carts, buggies, pallet jacks and other wheeled equipment must have soft rubber wheels or inflatable rubber wheels. No steel or other metal wheels are permitted on the premises without prior approval by SPB. Contractors are financially responsible, on a per-occurrence basis, for repair of any damage to surfaces caused by Contractor's vehicles or equipment. SPB will determine if a particular repair may be addressed by the Contractor or if the Contractor must pay SPB to address the repair.

No large equipment can be transported through the Cemetery; any special access for equipment must be requested and approved in advance.

• **Lay Down and Storage:** Contractors must only use the confines of the limits of construction and designated lay down areas for storage, lay down, staging, supplies, materials, equipment, assemblies, and work. Contractors must provide a plan prior to construction commencement indicating planned areas for materials, vehicles, and tools storage.

• **Trash and Debris Disposal:** Contractors are prohibited from using on-site dumpsters. All trash, debris, and discarded packing materials must be removed from State property daily.

No trash or flammable material storage of any type whatsoever shall be permitted inside the building or adjacent to the building inside the oval walk.

• **Sound Limitations:** All work involving heavy equipment and/or producing high-volume sounds or vibrations must be scheduled in advance with the SPB and will be limited to the hours before 7:00am and after 6:00pm on weekdays or limited to weekend hours, depending on the Cemetery event schedule. This includes, but is not limited to, drilling piers and pouring or demolishing concrete. Contractor's use of certain generators may be limited to off hours.

To assure audibility of fire alarms at all times and reduce noise, prohibit interior use of music players and individually controlled audio systems by construction personnel.

• **Clean-up:** All clean-up of tools and equipment, if required, must be done off site and not on the grounds or in the building. Contractors must not dispose of any hazardous chemicals or any type of solids using the state's sanitary or storm sewer system. Contractors must remove all construction debris and trash from the construction area daily using covered carts, in accordance with state and federal laws.

The following applies to State Preservation Board Facilities Projects that include EXTERIOR work areas:

• **Visitor Safety:** Contractor must enclose the entire work area with temporary fencing and provide clearly-designated safe alternate pedestrian and vehicular routes when existing routes are obstructed. To inhibit unauthorized access, Contractors must secure the work area at the end of each workday and whenever Contractor's employees are not present.

• **Heavy Equipment:** Large trucks and other heavy equipment are not permitted on the Cemetery without prior approval of SPB. At least 48 hours before the work begins, contractors must provide SPB information on how they intend to protect the grounds from damage by equipment as it moves on and off the work site. Construction mats must be utilized to protect the grounds when heavy equipment is used for excavation, concrete work, stone placement and similar work. Contractors may be required to utilize Tire Socks, Fork Socks, Track Socks and Drip Diapers when working in certain areas. (Also see Sound Limitations and Protection of Exterior Building Finishes and Landscapes.)

Contractors should be aware of local regulations regarding the operation of heavy equipment on City of Austin streets.

• **Protection of Exterior Building Finishes and Landscapes:** During the entire construction period, while moving supplies, equipment, materials, tools, debris, and personnel in and out of the Cemetery, it is the contractor's responsibility to protect all exterior building finishes and landscape elements along the delivery and removal route being used. Protections may include heavy-duty construction mats, plywood sheets or other methods approved by SPB. Landscape elements include, but are not limited to: streets, sidewalks, fencing, gates, monuments, statuary, drinking fountains, trash cans, benches, concrete surfaces, turf, planting beds, trees, and underground utilities (manholes, vaults, irrigation systems, electrical systems, water supply, and storm and sanitary sewers.) Contractors must also protect all surfaces and drive lanes from oil, gasoline, or any other petroleum products, chemicals, or construction debris. Contractors must provide special protection to the limestone curbing of the Cemetery by utilizing plywood ramps or other methods approved by SPB. Contractors must ensure

that all vehicles and equipment are moved over the protective mats and ramps. Contractors are responsible for any damage to, or destruction of, any landscape, hardscape, or utilities caused by the actions or inactions of the Contractor's employees. SPB will determine if a particular repair may be addressed by the Contractor or if the Contractor must compensate SPB to address the repair.

• **Excavation Observation:** For any excavation expected to be 12" or deeper, Contractor must notify SPB at least 24 hours in advance and arrange for an SPB employee to observe the work. If any potentially historical artifacts are uncovered, the work may be stopped until a full evaluation can be conducted.

• **Underground Utilities (State of Texas):** Contractors are financially responsible for any damage done to underground utilities by their workforce. Temporary fencing and other accessories must be supported and anchored without the use of stakes or other sub-grade apparatuses whenever possible. Sand bags and water barrels are acceptable anchors.

• **Underground Utilities (City of Austin):** Contractors disturbing soil more than 16" deep in areas where city utilities may be present must coordinate with the City of Austin. State law requires contractors to call, no later than 2 business days before excavating, the Texas Excavation Safety System (also known as One Call) at 8-1-1. For city water emergencies, call (512) 972-1000 for 24-hours service.

• **Tree Protection:** The ability of the SPB to cure construction injuries on trees is very limited, so the Contractor's focus must be on the prevention of damage. Contractor must take all necessary precautions to protect trees and their roots from damage. To the extent possible, root zones must be kept free of equipment and materials. Any necessary trimming must be performed only with prior approval from SPB.

Contractor must employ the following additional protective measures for certain trees to be designated by SPB which are located within or near the work area:

> **Crown Protection Zones:** T-post and orange fence must be set at a minimum of 10 feet from the surface of the trunk, or along the tree's drip line, whichever provides a greater distance from the trunk. No encroachment within 10 feet of a trunk will be permitted without the specific approval of SPB.

Root Buffer: For areas under tree canopies that are inside the construction fence AND will be accessed by any heavy equipment & load (total weight over 5,000 lbs.,) a temporary buffer is required and must cover the root zone and remain in place at the specified thickness until the final grading stage. The protective buffer must consist of shredded wood chips spread over the roots at a minimum of 6 inches in depth, plus a 3/4-inch thick layer of quarry gravel and topped by 3/4-inch thick plywood sheets. Steel plates can be used in lieu of plywood.

Mulch Ring: After final grading of the site, provide mulch (Texas Native Mulch - color Black, or approved equal) to a depth of 4 inches, in a circle around the base of the trees. Diameter of mulch ring to be specified by SPB based on tree size.

• **Water:** Through coordination with SPB, a non-potable water source may be made available to contractors at no cost, depending on work locations and hose-bib availability. A quick-connect hose fitting is required for water access and may be loaned to contractors by SPB. Contractors must provide hoses as required and return hose fittings to SPB when no longer needed. If hoses cross existing pedestrian routes, Contractor may be required to provide temporary ramps or other protections to avoid a tripping hazard. Contractors are responsible for providing water as needed when no existing nearby source is identified. SPB is not responsible for providing potable (drinking) water to Contractors.

• **Accessible Routes:** Contractors must maintain the public use of existing accessible routes whenever possible. When Contractors must compromise an accessible route, they must also provide alternative accommodations for mobility impaired visitors to access the Cemetery, or conduct work outside Cemetery opening hours.

• **Electrical Power:** Electrical service is typically not available to Contractors on the Cemetery. Contractors must provide portable generators as required. (Also see Sound Limitations and Protection of Exterior Building Finishes and Landscapes.)

• **Plants & Irrigation:** Contractors must not perform any plant-related work without approval of the SPB. In most cases, contractors will be responsible for maintaining turf and other plants within the work area for the duration of the project. Contractors must make every effort to protect existing turf, plants and irrigation systems, and are financially responsible for any damage.

STATE PRESERVATION BOARD
FIRE PROTECTION POLICY

1. Purpose: To provide safety guidelines for state personnel and outside contractors who will be performing work involving open flames, sparks, generation of high temperature, or highly combustible materials within or near the buildings.
2. Guidelines. In instances in which construction or repairs involve open flames, sparks, or the use of highly combustible materials, a fire watch will be established. The most current fire safety procedures and standards will be applied. Personnel and contractor must meet the requirements established in NFPA 51-B as a minimum, but other currently accepted fire safety procedures shall also apply. Basic procedure shall include but are not limited to the following.
    A. The area shall be cleared of all removable combustible materials.
    B. The floor shall be swept clean within a minimum of 10 feet of the work area.
    C. The wall and floor opening in the area will be appropriately sealed to prevent spread to adjacent areas.
    D. The ducts to the areas will be sealed or shut down.
    E. Fire watchers shall have adequate fire extinguishing equipment readily available and shall be trained in their use.
    F. Fire watchers shall be trained in the use of the building alarm systems. They shall be familiar with the facilities and with the fire evacuation plan.
    G. The fire watch shall be maintained after the completion of the work for a period of time adequate to assure that no risk remains.
    H. The work site shall be inspected by the fire watcher(s) at two-hour and four-hour intervals following the completion of work.
3. Permits and supervision.
    A. Projects and contracts of less than $100,000. The Capitol fire marshal shall issue a permit for any activity involving a potential fire hazard and shall implement appropriate fire watch procedures. A permit signed by the fire marshal shall serve as authorization to proceed. The fire marshal shall designate trained fire watchers to oversee the activity.
    B. Contracts of $100,000 or more. The contractor shall submit a proposed fire protection program for the review and approval of the Capitol fire marshal. The program shall include fire watch procedures as well as routine fire prevention procedures in compliance with this policy and commonly accepted fire prevention standards. Upon approval of the fire protection program by the Capitol fire marshal, the contractor shall assume the responsibility for the implementation and oversight of the program with periodic review by the fire marshal. The contractor shall issue fire watch permits and assume responsibility for enforcing this policy.
4. Do not store any inflammable material inside Owner’s facilities or in areas where historic fabric is being stored.

END OF SECTION

SECTION 01 10 00 – SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Contractor's use of site and premises.
4. Work restrictions.
5. Specification and Drawing conventions.

1.2 PROJECT INFORMATION

A. Project Identification: Texas State Cemetery Caretaker Cottage.

1. Project Location: Austin, Texas.

B. Owner: State of Texas.

1. Owner's Representative: Texas State Preservation Board.

C. Architect: Komatsu Architecture, Inc.

1. Architect's Representative: Vincent Ramirez, AIA.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. The cottage's exterior envelope will be restored by removing all vinyl siding, soffits, trim accessories and restored in-situ. The existing fish scale wood shingles at the dutch gable roof will be restored and replicated if needed. Two new louvers at attics will be installed and integrated into the original building envelope. The wood columns at the front porch will be repaired and restored in-situ, and a new historic replica wood baluster will be constructed to match the historic photograph referenced. The front porch walk approach improved with a section of concrete walk replaced and a step riser added abutting the existing concrete porch stoop. The existing metal roofing will be removed and replaced with a new standing seam metal roof. Replacement of the existing metal roof includes roofing accessories that are flaking, gutters, downspouts, etc. All existing windows are to be reset to their original inset location, with each being appropriately re-flashing and sealed weather/airtight. The existing rear patio door to be removed with framing to be re-worked for an enlarged door and other work indicated in the Contract Documents.

1.4 CONTRACTOR'S USE OF SITE AND PREMISES

A. See Owner's Supplementary Conditions in the Project Manual.

B. Contractor to limit the use of Project site to areas within the Contract limits indicated. Do not disturb portions of the Project site beyond areas in which the work is indicated.

1. Limits on Use of Site: Confine construction operations to fenced-in cottage property.

2. Driveways, Walkways, and Entrances: Keep driveways, parking areas, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

C. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout the construction period. Repair damage caused by construction operations.

1.5 WORK RESTRICTIONS

A. See 00 73 02 Owners Requirements for detailed Work Restrictions.

1.6 ACCESS

A. Access to the Cemetery will be coordinated by the State Preservation Board and monitored by the Operator.

B. Parking of Contractor's staff to be along Navasota Street including refuse dumpsters.

C. Construction traffic on site will be coordinated with the Owner with a minimum of 24-hour notice.

PART 2 - CONSTRUCTION DOCUMENTS

2.1 SPECIFICATION AND DRAWING CONVENTIONS

A. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to all Sections in the Specifications.

END OF SECTION

01 20 00 - PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.
B. Documentation of changes in Contract Sum and Contract Time.
C. Change procedures.
D. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

A. Section 00 73 00 – Supplementary Conditions
B. Section 01 22 00 - Unit Prices: Monetary values of unit prices, payment and modification procedures relating to unit prices.

1.03 SCHEDULE OF VALUES

A. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Owner for approval.
B. Forms filled out by hand will not be accepted.
C. Submit a printed schedule on AIA Form G703 – Application and Certificate for Payment Continuation Sheet, or similar format acceptable to the Owner.
D. Submit Schedule of Values within 14 days after date after execution of Agreement for Work.
E. Utilize numbering and scope of CSI divisions contained in these specifications.
F. Revise schedule to include approved Change Orders with each Application for Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Monthly.
B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect and Owner for approval.
C. Forms filled out by hand will not be accepted.
D. Present required information in typewritten form.
E. Form: AIA G702 Application and Certificate for Payment and AIA G703 - Continuation Sheet including G703 continuation, or similar format acceptable to the Owner.
F. Execute certification by signature of authorized officer.
G. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.
H. Submit Draft copies of each Application to Owner and Architect seven (7) days prior to date of Application for review and comments.
I. After making requested revisions, submit four copies of each Application for Payment to Owner for approval and payment.

1.05 MODIFICATION PROCEDURES

A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ or subcontractors of changes to the Contract Documents.
B. For minor changes not involving an adjustment to the Contract Price or Contract Time, Architect/Owner will issue instructions directly to Contractor.
C. The Architect/Engineer will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time as authorized by the Conditions of the Contract by issuing Architect's Supplemental Instructions on AIA Form G710, or similar format.
D. Construction Change Directive: Owner may issue a document instructing Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
    1. The document will describe changes in the Work, and will designate method of determining any change in Contract Sum or Contract Time.
    2. Promptly execute the change in Work.
E. For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 10 working days.
F. Contractor may propose a change by submitting a request for change to Architect, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01600.
G. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
    1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
    2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Architect.
    3. For pre-determined unit prices and quantities, the amount will based on the fixed unit prices.
    4. For change ordered by Architect without a quotation from Contractor, the amount will be determined by Architect based on the Contractor's substantiation of costs as specified for Time and Material work.

H. Substantiation of Costs: Provide full information required for evaluation.
    1. On request, provide following data:
        a. Quantities of products, labor, and equipment.
        b. Taxes, insurance, and bonds.
        c. Overhead and profit.
        d. Justification for any change in Contract Time.
        e. Credit for deletions from Contract, similarly documented.
    2. Support each claim for additional costs with additional information:
        a. Origin and date of claim.
        b. Dates and times work was performed, and by whom.
        c. Time records and wage rates paid.
        d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
    3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
I. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
J. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.
K. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
L. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.
B. Application for Final Payment will not be considered until the following have been accomplished:
    1. All closeout procedures specified in Section 01 78 00.

END OF SECTION

01 23 00 – UNIT PRICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Measurement and payment criteria applicable to Work performed under a unit price payment method.

1.02 UNIT QUANTITIES SPECIFIED

A. Quantities indicated in the unit price schedule are for bidding and contract basis purposes only. Quantities and measurements of actual Work will determine the payment amount. Account for tax exempt products and services in accordance with the conditions of the contract.

1.03 UNIT PRICE ADMINISTRATION:

A. Unit prices will be used to adjust the Contract Price by Change Order.
    1. Unit prices and corresponding quantity allowances include all direct and indirect costs including necessary material, labor, overhead, profit and applicable taxes, unless otherwise indicated in the Schedule.
B. The Contractor shall keep a daily log of actual quantities of specified work units encountered, consumed, or expended, and shall report as an attachment to each Application for Payment. Actual quantities and the Contractor's log are subject to review by the Owner/Architect.
C. Daily log shall distinguish between work units which are part of indicated base quantities in the Drawings and Specifications, work units which are part of indicated allowance quantities, and unit price work performed in response to a modification procedure which adjusted either of these quantities.
    1. Specific procedures for measuring and recording unit price work shall be reviewed and confirmed at each pre-installation conference and, where applicable, at coordination and progress meetings.
D. Refer to individually referenced specification sections for additional requirements.

1.04 MEASUREMENT OF QUANTITIES

A. Contractor will take all measurements and compute quantities accordingly.
B. Provide necessary equipment, workers, and survey personnel as required.
C. Contractor Responsibilities: Sign field notes and keep duplicate field notes, calculate and certify quantities for payment purposes. Where required, conduct unit price inventories jointly with Owner or Owner's representatives. Differences in scope will be adjusted by Change Order.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

01 30 00 – ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preconstruction meeting
B. Progress meetings
C. Construction Progress Schedule
D. Submittals for review, information, and project closeout
E. Number of copies of submittals
F. Submittal procedures.

1.02 RELATED SECTIONS

A. Document 00 70 00 – Conditions of the Contract
B. Section 01 78 00 – Closeout Submittals: Project record documents.

1.03 PROJECT COORDINATION

A. Project Coordinator: The State Preservation Board, Owner/Architect
B. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for access, traffic, and parking facilities.
C. During construction, coordinate use of site and facilities through the Project Coordinator.
D. Comply with Project Coordinator's procedures for intra-project communications, submittals, reports, records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.
E. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.
F. Coordinate field engineering and layout work under instructions of the Project Coordinator.
G. Make the following types of submittals to Owner/Architect:
    1. Requests for interpretation
    2. Requests for substitution
    3. Shop drawings, product data, and samples
    4. Test and inspection reports
    5. Design data
    6. Manufacturer's instructions and field reports.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

A. Attendance Required:
    1. Owner/Architect
    2. Contractor
B. Agenda:
    1. Execution of Owner-Contractor Agreement
    2. Submission of executed bonds and insurance certificates
    3. Distribution of Contract Documents
    4. Submission of schedule of values, and progress schedule
    5. Designation of personnel representing the parties to Contract, and Architect
    6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal requests, Change Orders, and Contract closeout procedures.
    7. Scheduling
    8. Security Procedures.
C. Designation of personnel representing the parties to Contract.

3.02 PROGRESS MEETINGS

A. Given the short duration and small scope of this Project, progress meetings will be called informally as required, between the Owner and Prime Contractor.

3.03 CONSTRUCTION PROGRESS SCHEDULE

A. If preliminary schedule requires revision after review, submit revised schedule within 5 days.
B. Within 5 days after award of contract, submit draft of proposed complete schedule for review.
    1. Include written certification that major contractors have reviewed and accepted proposed schedule.
C. Given the short duration of this Project, an updated schedule is not required with each Application for Payment.

3.04 PROGRESS PHOTOGRAPHS

A. Owner/Architect will photo document work.

3.05 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
    1. Product data
    2. Shop drawings
    3. Samples for selection
    4. Samples for verification
B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
C. Samples will be reviewed only for aesthetic, color, or finish selection.
D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 78 00 – CLOSEOUT SUBMITTALS

3.06 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
    1. Design data
    2. Certificates
    3. Test reports
    4. Inspection reports
    5. Manufacturer’s instructions
    6. Manufacturer’s field reports
    7. Other types indicated
B. Submit for Architect’s knowledge as contract administrator or for Owner. No actions will be taken.

3.07 SUBMITTALS FOR PROJECT CLOSEOUT

A. When the following are specified to individual sections, submit them at project closeout:
    1. Project record documents
    2. Operation and maintenance data
    3. Warranties
    4. Bonds
    5. Other types as indicated

3.08 NUMBER OF COPIES OF SUBMITTALS

A. Documents for Review:
    1. Small Size Sheets, not larger than 8 ½ x 11 inches: submit the number of copies which the Contractor requires, plus two copies which will be retained by the Owner/Architect.
    2. Larger sheets, not larger than 30x42 inches: Submit the number of opaque reproductions which Contractor requires, plus two copies which will be retained by Owner/Architect.
    3. Digital pdf’s of each sheet shall additionally be submitted to the Owner/Architect.

B. Documents for Information: Submit two.
C. Documents for Project Closeout: Submit one reproduction of submittal originally reviewed. Submit one extra of submittals for information.
D. Samples: Submit the number specified in individual specification sections.
    1. After review, produce duplicates.
    2. Retained samples will not be returned to Contractor unless specifically so stated.

3.09 SUBMITTAL PROCEDURES

A. Transmit each submittal with AIA Form G810 or comparable format.
B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
C. Identify Project, Contractor, Subcontractor or Supplier, pertinent drawing and detail number, description of item being submitted by item and location within Work, and specification section number, as appropriate on each copy.
D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
E. Deliver submittals to Architect at business address.
F. Schedule submittals to expedite the Project, and coordinate submission of related items.
G. For each submittal for review, allow 5 days excluding delivery time to and from the Contractor.
H. Identify variations from Contract Documents and Products or system limitations which may be detrimental to successful performance of the completed Work.
I. Provide space for Contractor and Architect review stamps.
J. When revised for resubmission, identify all changes made since previous submission.
K. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with the requirements.
L. Submittals not requested will not be recognized or processed.

END OF SECTION

01 32 50 – CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Construction progress schedule and reports

1.02 RELATED SECTIONS

A. Section 01 10 00 – Summary
B. Section 00 32 00 – Preliminary Work Schedule
C. Section 01 71 00 – Project Closeout: Project record documents.

1.03 SUBMITTALS

A. Within 15 days after the award of the Contract, submit draft of proposed complete schedule for review.
    1. Include written certification that major Subcontractors have reviewed and accepted proposed schedule.
    2. Submission of complete draft schedule is a precondition for consideration of the initial Application and Certification for Payment.
B. If proposed schedule requires revision after review, submit revised schedule within 10 days.
C. Submit updated schedule with each Application for Payment
    1. Notify the Owner in writing when more than two weeks behind in schedule. Make this notification at weekly increments as long as the condition exists.
D. Submit schedule in digital format.

1.04 QUALITY ASSURANCE

A. Contractor’s Administrative Personnel: Two years minimum experience in using and monitoring CPM schedules on comparable projects.

1.04 SCHEDULE FORMAT

A. Submit progress schedule in Gantt chart format.
B. Listings: In chronological order according to start date for each activity. Identify each activity with the applicable specification section number.
C. Sheet Size: Maximum 11x17 inches.
D. Scale and Spacing: To allow for notations and revisions.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 CONTENT

A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
B. Identify each item by specification section number.
C. Identify work of logically grouped activities.
D. Indicate dates when applications for progress payments will be made
E. Show accumulated percentage of completion of each item, and total percentage of Work complete as of the first day of each month.
F. Provide separate submittal progress schedule, showing submittal dates for each mock-up, shop drawing, product data, sample, owner-furnished products, and dates reviewed submittals will be returned from Architect/Owner. Indicate critical decision dates on the Critical Path for selection of finishes, allowances, and products to be furnished by Owner (if any).
G. Indicate delivery dates for owner-furnished products and products.
H. Coordinate content with schedule of values specified in Section 01 20 00.
I. Provide legend for symbols and abbreviations used.

3.03 UPDATING SCHEDULE

A. Maintain schedules to record actual start and finish dates of completed activities.
B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
C. Annotate diagrams to graphically depict current status of Work.
D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
E. Indicate changes required to maintain Date of Substantial Completion.
F. Submit reports required to support recommended changes.

3.04 DISTRIBUTION OF SCHEDULE

A. Distribute copies of updated schedules to Owner/Architect and other concerned parties.
B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedule.

END OF SECTION

01 33 00 – SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

1.02 RELATED SECTIONS

A. 01 20 00 Price and Payment Procedures
B. 01 40 00 Quality Requirements
C. 01 77 00 Execution Requirements

1.03 SUBMITTAL TYPES

A. Action Submittals: Written and graphic information that requires Architect's responsive action.
B. Informational Submittals: Written information that does not require Architect's approval. Submittals may be rejected for not complying with requirements.

1.04 SUBMITTAL PROCEDURES

A. Electronic copies of CAD Drawings of the Contract Drawings may be provided by Architect for Contractor's use in preparing submittals upon Architect's receipt of a signed CAD release form from Contractor.
B. Coordinate preparation and processing of submittals with performance of construction activities.
    1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
    2. 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.
        i. Architect reserves the rights to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
    3. Provide all submittals that require color, pattern or texture selection at the same time to allow Architect to make selections in a coordinated manner.
C. Comply with submittal schedule requirements in Section 01 32 50 Construction Progress Schedule for list of submittals and time requirements for scheduled performance of related construction activities.

D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence upon Architect's receipt of submittal.
    1. Allow 7 calendar days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
    2. Where concurrent review of submittals by Architect's consultants or other parties is required, allow 14 calendar days for initial review of each submittal.
    3. Where the Contract Documents indicate that submittals may be transmitted directly to Architect's consultants, provide duplicate copy of transmittal to Architect. Submittal will be returned to Architect before being returned to Contractor.
    4. Allow 7 calendar days for processing each resubmittal.
    5. Upon written request of the Contractor and written agreement by the Architect, submittals and resubmittals may be expedited as required by the conditions of the Project.
    6. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance Work to permit processing.
E. Identification: Place a permanent label or title block on each submittal for identification
    1. Indicate name of firm or entity that prepared each submittal on label or title block.
    2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
    3. Include the following information on label for processing and recording action taken:
        i. Project Name
        ii. Date
        iii. Name and address of Architect
        iv. Name and address of Contractor
        v. Name and address of subcontractor
        vi. Name and address of supplier
        vii. Name of manufacturer
        viii. Unique identifier, including revision number
        ix. Number and title of appropriate specification section
        x. Drawing number and detail references, as appropriate
        xi. Other necessary identification.
    4. Deviations: Highlight, circle, or otherwise identify deviations from the Contract Documents on submittals.

5. Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
    i. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.
    ii. Include Contractor's certifications stating that information submitted complies with requirements of the Contract Documents.
    iii. Use the Contractor's standard submittal form. Provide locations on form for the following information:
        1. Project Name
        2. Date
        3. Destination (TO)
        4. Source (FROM)
        5. Names of subcontractor, manufacturer, and supplier
        6. Category and type of submittal
        7. Submittal purpose and description
        8. Submittal and transmittal distribution record
        9. Remarks
        10. Signature of transmitter
    iv. Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
    v. Use only final submittals with mark indicating action taken by Architect in connection with construction.

PART 2 PRODUCTS

2.01 ACTION SUBMITTALS

A. Prepare and submit Action Submittals required by individual specification sections.
    1. Submit number of copies Contractor wants returned plus one copy of each submittal, unless otherwise indicated. Mark up and retain one returned copy as a Project Record Document.

B. Collect information into a single submittal for each element of construction and type of product or equipment.
    1. If information must be specifically prepared for submittal because standard printed data are not suitable for use, submit as shop drawings, not as product data.
    2. Mark each copy of each submittal to show which products and options are applicable.
    3. Include the following information, as applicable:
        i. Manufacturer’s written recommendations
        ii. Manufacturer’s product specifications
        iii. Manufacturer’s installation instructions
        iv. Standard color charts
        v. Manufacturer’s catalog cuts
        vi. Wiring diagrams showing factory-installed wiring.
        vii. Printed performance curves
        viii. Operational range diagrams
        ix. Mill reports
        x. Standard product operating and maintenance manuals
        xi. Compliance with recognized trade association standards
        xii. Compliance with recognized testing agency standards
        xiii. Application of testing agency labels and seals
        xiv. Notation of coordination requirements
    4. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
        i. Preparation: Include the following information, as applicable:
            1. Dimensions
            2. Identification of products
            3. Fabrication and installation drawings
            4. Roughing-in and setting diagrams
            5. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
            6. Shop work manufacturing instructions
            7. Templates and patterns
            8. Schedules
            9. Design calculations
            10. Compliance with specified standards
            11. Notation of coordination requirements
            12. Notation of dimensions established by field measurement
        ii. Wiring diagrams: Differentiate between manufacturer-installed and field-installed wiring

5. Samples: Prepare physical units of materials or products, including the following:
    i. Comply with requirements in Division 1 Section “Quality Requirements” for mockups.
    ii. Samples of Initial Selection: Submit manufacturer’s color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    iii. Samples for Verification: Submit full-size units or samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the 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.
    iv. Preparation: Mount, display, or package samples in manner specified to facilitate review of qualities indicated. Prepare samples to match Architect’s sample where so indicated. Attach label on unexposed side that includes the following:
        1. Generic description of Sample
        2. Product name or name of manufacturer
        3. Sample source
    v. Additional Information: ON an attached separate sheet, prepared on Contractor’s letterhead, provide the following:
        1. Size limitations
        2. Compliance with recognized standards
        3. Availability
        4. Delivery time
    vi. Submit samples of review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
        1. If variation in color, pattern, texture, or other characteristic is inherent in the product represented by a sample, submit at least three sets of paired units that show approximate limits of the variations.
        2. Refer to individual specification sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
    vii. Number of samples for initial selection: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer’s product line. Architect will return submittal with options selected.

viii. Number of samples for verification: Submit four sets of samples. Architect will retain two sample sets; remainder will be returned. Mark up and retain one returned sample as a project record sample.
ix. Submit a single sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

6. 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.
    i. Samples that may be incorporated into the Work are indicated on individual Specification sections. Such samples must be in an undamaged condition at time of use.
    ii. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of the Contractor.
7. Product schedule or list: Prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
    i. Type of product. Include unique identifier for each product.
    ii. Number and name of room or space
    iii. Location within room or space.

PART 3 EXECUTION

3.01 CONTENT

C. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
D. Identify each item by specification section number.
E. Identify work of logically grouped activities.
F. Indicate dates when applications for progress payments will be made
G. Show accumulated percentage of completion of each item, and total percentage of Work complete as of the first day of each month.
H. Provide separate submittal progress schedule showing submittal dates for each mock-up, shop drawing, product data, sample, and owner-furnished products. Show dates reviewed submittals will be returned from Architect/Owner. Indicate critical decision dates on the Critical Path for selection of finishes, allowances, and products to be furnished by Owner (if any).
I. Indicate delivery dates for owner-furnished products and products.
J. Coordinate content with schedule of values specified in Section 01 20 00.
K. Provide legend for symbols and abbreviations used.

3.03 UPDATING SCHEDULE

A. Maintain schedules to record actual start and finish dates of completed activities.
B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
C. Annotate diagrams to graphically depict current status of Work.
D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
E. Indicate changes required to maintain Date of Substantial Completion.
F. Submit reports required to support recommended changes.

3.04 DISTRIBUTION OF SCHEDULE

A. Distribute copies of updated schedules to Owner/Architect and other concerned parties.
B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedule.

2.02 INFORMATIONAL SUBMITTALS

A. Prepare and submit information submittals required by other specification sections.
B. Construction Progress Schedule – comply with requirements of section 01 32 50 – CONSTRUCTION PROGRESS SCHEDULE
C. 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 architects and owners, and other information specified.
D. Product Certificates: Prepare written statements on manufacturer’s letterhead certifying that product complies with requirements.
E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
F. Installer Certificates: Prepare written statements on manufacturer’s letterhead certifying that Installer complies with requirements and, where required, is authorize for this specific Project.
G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
I. 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.

J. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of test performed before installation of product, for compliance with performance requirements.
K. 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.
L. 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.
M. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. 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.
N. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
    a. Name of evaluation
    b. Date of evaluation.
    c. Time period when report is in effect.
    d. Product and manufacturers'
    e. Description of product.
    f. Test procedures and
    g. Limitations of use.
O. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and Maintenance Data."
P. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
Q. Manufacturer's Instructions: 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.

R. Manufacturer's Field Reports: 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 Project 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 indicated on individual specification sections.
S. 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.
T. Material Safety Data Sheets: Submit information directly to Owner.

PART 3 – EXECUTION

3.01 CONTRACTOR'S REVIEW

A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
B. Approval stamp – stamp each submittal with a uniform approval stamp. Include project name and location, submittal number, specification section title and number, name of reviewer, date of Contractor approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.02 ARCHITECT'S ACTION

A. Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows;
    a. No Exceptions: Submittal is acceptable without modifications
    b. Exceptions As Noted: Submittal is acceptable provided modifications noted are made. No resubmittal is required.
    c. Revise and resubmit – Correct submittal as noted and resubmit for review.
    d. Submit Specified Item: Submittal is rejected. Submit product specified or other product listed in Part 2.

C. Informational Submittals: Architect will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.
E. This review is only for general conformance with the design concept of the Project and general compliance with the information given in the Contract Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Approval of a specific item shall not include approval of an assembly of which the item is a component. Contractor is responsible for confirming dimensions and correlating at the job site; Information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; Coordination of the Work of all trades; and for performing all work in a safe and satisfactory manner.

END OF SECTION

01 35 10 – ENVIRONMENTAL SAFETY AND WORKER PROTECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Contractor’s requirements for maintaining safe working conditions.

1.02 RELATED SECTIONS

A. General Conditions: Inspections and approvals required by public authorities.

1.03 REFERENCES

A. 29 CFR 1910, “Occupational Safety and Health Standards.”

1.04 SUBMITTALS

NOT USED

PART 2 PRODUCTS

2.01 MATERIALS

A. The Contractor is to supply materials and equipment to insure the safety and protection of workers, building occupants, and the environment in accordance with regulatory requirements, and these specifications.

PART 3 EXECUTION

3.01 WORKER PROTECTION

A. The Contractor is required to follow all regulatory requirements for worker protection.

END OF SECTION

SECTION 01 35 91 - HISTORIC TREATMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The Section includes general protection and treatment procedures for designated historic spaces, areas, rooms, and surfaces in Project.

1.3 DEFINITIONS

A. Consolidate: To strengthen loose or deteriorated materials in place.

B. Dismantle: To disassemble or detach a historic item from a surface, or a non-historic item from a historic surface, using gentle methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

C. Historic: Elements, surfaces, materials, finishes, and overall appearance are essential to the successful **rehabilitation**, **restoration, and reconstruction** as determined by Architect. Designated historic **elements and surfaces** are **indicated on Drawings and scheduled in Part 3 of this Section**.

D. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish, as approved by Architect.

E. Refinish: To remove existing finishes to the base material and apply a new finish to match the original or otherwise indicated.

F. Reinstall: To protect the removed or dismantled item, repair and clean it as indicated for reuse, and reinstall it in the original position, or where indicated.

G. Remove: To take down or detach a non-historic item located within a historic space, area, or room, using methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

H. Repair: To correct damage and defects, retaining existing materials, features, and finishes while employing as little new material as possible. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.

I. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.

J. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.

K. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.

L. Restore: To consolidate, replicate, reproduce, repair, and refinish as required to achieve the indicated results.

M. Retain: To keep existing items that are not to be removed or dismantled.

N. Reversible: New construction work, treatments, or processes that can be removed or undone in the future without damaging historic materials unless otherwise indicated.

O. Salvage: To protect removed or dismantled items and deliver them to the Owner.

P. Stabilize: To provide structural reinforcement of unsafe or deteriorated items while maintaining the essential form as it exists and reestablish a weather-resistant enclosure.

Q. Strip: To remove existing finish down to base material unless otherwise indicated.

1.4 COORDINATION

A. Not used

1.5 PROJECT MEETINGS FOR HISTORIC TREATMENT

A. **Preliminary Historic Treatment Conference: Before starting historic treatment work, the Construction Manager will conduct a Pre-Construction Conference at the Caretaker Cottage to confirm the understanding of the historic treatment scope. The meeting may be combined with the initial project kickoff meeting.**

1. Attendees: In addition to representatives of the Owner, **Construction Manager,** Architect, and sub-Contractor, historic treatment specialists, and installers whose work interfaces with or affects historic treatment shall be represented at the meeting.

2. Agenda: Discuss items of significance that could affect the progress of historic treatment work, including a review of the following:

a. Historic Treatment: Discuss and finalize; verify availability of materials, historic treatment specialists' personnel, equipment, and facilities needed to make progress and avoid delays.

b. Fire-prevention plan.

c. Governing regulations.

d. Areas where existing construction is to remain and the required protection.

e. Hauling routes.

f. The sequence of historic treatment work operations.

g. Storage, protection, and accounting for salvaged and specially fabricated items.

h. Existing conditions, staging, and structural loading limitations of areas where materials are stored.

i. Qualifications of personnel assigned to historic treatment work and assigned duties.

j. Requirements for extent and quality of Work, tolerances, and required clearances.

k. Methods and procedures are related to historic treatments, including product manufacturers' written instructions and precautions regarding historic treatment procedures and their effects on materials, components, and vegetation.

l. Embedded Work such as flashings, special details, collection of wastes, protection of occupants and the public, and other construction conditions that affect the Work or will affect the Work.

3. Reporting: **The Construction Manager will record** conference results and distribute copies to everyone in attendance and others affected by decisions or actions resulting from the conference.

1.6 MATERIALS OWNERSHIP

A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered or uncovered during the Work, regardless of whether they were previously documented, remain Owner's property.

1. Carefully dismantle and salvage each item or object and protect it from damage, then promptly deliver it to the Owner where directed.

2. Coordinate with the Owner's **historical adviser**, who will establish special procedures for dismantling and salvaging.

1.7 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: An experienced firm regularly engaged in historic treatments similar in nature, materials, design, and extent to this Work as specified in each Section and that has completed a minimum of **three** recent projects with a record of successful in-service performance that demonstrates the firm's qualifications to perform this Work.

1. Field Supervisor Qualifications: Full-time supervisors experienced in historic treatment work similar in nature, material, design, and extent to that indicated for this Project. Supervisors shall be on the Project site when historic treatment work begins and during its progress. Supervisors shall not be changed during Project except for causes beyond the control of the specialist firm.

a. Construct new mockups of required Work whenever a supervisor is replaced.

B. Historic Treatment Program: Prepare a written plan for historic treatment for the whole Project, including each phase or process and protection of surrounding materials during operations. Describe in detail the materials, methods, and equipment to be used for each phase of Work. Show compliance with indicated methods and procedures specified in this and other Sections. Coordinate this whole-Project historic treatment program with specific requirements of programs required in other historic treatment Sections.

1. Dust and Noise Control: Include locations of proposed temporary dust- and noise-control partitions and means of egress from occupied areas coordinated with continuing on-site operations and other known Work in progress.
2. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.

C. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-prevention devices during each phase or process. Coordinate plan with Owner's fire-protection equipment and requirements. Include fire prevention personnel's training, duties, and authority to enforce fire safety.

D. Safety and Health Standard: Comply with ANSI/ASSE A10.6.

1.8 STORAGE AND HANDLING OF HISTORIC MATERIALS

A. Salvaged Historic Materials:
   1. Clean loose dirt and debris from salvaged historic items unless more extensive cleaning is indicated.
   2. Pack or crate items after cleaning; cushion against damage during handling. Label contents of containers.
   3. Store items in a secure area until delivery to the Owner.
   4. Transport items to Owner's storage area **designated by Owner**.
   5. Protect items from damage during transport and storage.

B. Historic Materials for Reinstallation:
   1. Repair and clean historic items for reuse as indicated.
   2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.
   3. Protect items from damage during transport and storage.
   4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make item functional for use indicated.

C. Existing Historic Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Architect, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after historic treatment and construction work in the vicinity is complete.

D. Storage: Catalog and store historic items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.
   1. Identify each item with a nonpermanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.
   2. Secure stored materials to protect from theft.

E. Storage Space:

1. Arrange for off-site locations for storage and protection of historic material that cannot be stored and protected on-site.

1.9 FIELD CONDITIONS

A. Size Limitations in Historic Spaces: Materials, products, and equipment used for performing the Work and for transporting debris, materials, and products shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, including temporary protection.

PART 2 - PRODUCTS - (Not Used)

PART 3 - EXECUTION

3.1 PROTECTION, GENERAL

A. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from historic treatment procedures.

1. Use only proven protection methods, appropriate to each area and surface being protected.
2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where historic treatment work is being performed.
3. Erect temporary barriers to form and maintain fire-egress routes.
4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during historic treatment work.
5. Contain dust and debris generated by historic treatment work, and prevent it from reaching the public or adjacent surfaces.
6. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
7. Protect floors and other surfaces along hauling routes from damage, wear, and staining.

B. Temporary Protection of Historic Materials:
   1. Protect existing historic materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
   2. Do not attach temporary protection to historic surfaces except as indicated as part of the historic treatment program and approved by Architect.

C. Comply with each product manufacturer's written instructions for protection and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.

D. Utility and Communications Services:
   1. Notify the Owner, Architect, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by historic treatment work before commencing operations.
   2. Contact Austin Energy and schedule disconnection of existing electrical services with Electrical Distribution Dispatch Office 512-505-7562, at least two (2) weeks prior to starting any work on the building's exterior.
   3. Disconnect and cap pipes and services (except electrical) as required by authorities having jurisdiction, as required for historic treatment work.
   4. Carefully disconnect all branch circuits and remove existing electrical service equipment, conduit, and conductors after disconnection by Austin Energy, and store for reinstallation.
   5. Maintain existing services (except electrical) unless otherwise indicated; keep in service, and protect against damage during operations. Provide temporary services as needed during interruptions to existing utilities.
   6. Once electrical service equipment, conduit, and conductors have been reinstalled, branch circuits have been reconnected, restoration work has been completed on the exterior of the building, and contact Austin Energy and schedule reconnection of electrical service.

E. Existing Drains: Prior to the start of Work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin Work in an area until the drainage system is functioning properly.

1. Prevent solids such as stone or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from historic treatment work.
2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

F. Existing Roofing: Prior to the start of Work in an area, install roofing protection.

3.2 PROTECTION FROM FIRE

A. General: Follow fire-prevention plan and the following:

1. Comply with NFPA 241 requirements unless otherwise indicated. **Perform duties titled "Owner's Responsibility for Fire Protection."**
2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate Work.
   a. If combustible material cannot be removed, provide fire blankets to cover such materials.
3. Prohibit smoking by all persons within Project work and staging areas, **except where specifically designated for smoking**.

B. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing Work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:

1. As far as practicable, restrict heat-generating equipment to shop areas or outside the building.
2. Do not perform Work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
3. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.
4. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.

5. Fire Watch: Before working with heat-generating equipment or combustible materials, station personnel to serve as a fire watch at each location where such Work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:
    a. Train each fire watch in the proper operation of fire-control equipment and alarms.
    b. Prohibit fire-watch personnel from other Work that would be a distraction from fire-watch duties.
    c. Cease Work with heat-generating equipment whenever fire-watch personnel are not present.
    d. Have fire-watch personnel perform final fire-safety inspection each day beginning no sooner than **30 minutes** after conclusion of Work at **each area of** Project site to detect hidden or smoldering fires and to ensure that proper fire prevention is maintained.
    e. Maintain fire-watch personnel at[**each area of**] Project site until **60 minutes** after conclusion of daily Work.

C. Fire Extinguishers, Fire Blankets, and Rag Buckets: Maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and the fire-watch personnel are trained in fire-extinguisher and blanket use.

D. Sprinklers: Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to sprinklers, shield them temporarily with guards.
    1. Remove temporary guards at the end of work shifts, whenever operations are paused, and when nearby Work is completed.

3.3 PROTECTION DURING APPLICATION OF CHEMICALS

A. Protect motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm or damage resulting from applications of chemicals and adhesives.

B. Cover adjacent surfaces with protective materials that are proved to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in historic treatment program. Use covering materials and masking agents that are waterproof and UV resistant and that will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to manufacturer's

written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials.

C. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.

D. Neutralize alkaline and acid wastes and legally dispose of off Owner's property.

E. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

3.4 GENERAL HISTORIC TREATMENT

A. Have historic treatment work performed only by qualified historic treatment specialists.

B. Ensure that supervisory personnel are present when historic treatment work begins and during its progress.

C. Record existing Work before each procedure (pre-construction), and record progress during the Work. Use digital pre-construction documentation **photographs**. Comply with requirements in Section 013233 "Photographic Documentation."

D. Perform surveys of Project Site as the Work progresses to detect hazards resulting from historic treatment procedures.

E. Follow the procedures in subparagraphs below and procedures approved in historic treatment program unless otherwise indicated:

1. Retain as much existing material as possible; repair and consolidate rather than replace.
2. Use additional material or structure to reinforce, strengthen, prop, tie, and support existing material or structure.
3. Use reversible processes wherever possible.
4. Use historically accurate repair and replacement materials and techniques unless otherwise indicated.
5. Record existing Work before each procedure (pre-construction) and progress during the Work with digital pre-construction documentation **photographs**. Comply with requirements in Section 013233 "Photographic Documentation."

F. Notify Architect of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.

1. Do not proceed with the Work in question until directed by Architect.

G. Where missing features are indicated to be repaired or replaced, provide Work with appearance based on accurate duplications rather than on conjecture, subject to approval of Architect.

H. Where Work requires existing features to be removed or dismantled and reinstalled, perform these operations without damage to the material itself, to adjacent materials, or to the substrate.

I. Identify new and replacement materials and features with permanent marks hidden in the completed Work to distinguish them from original materials. Record a legend of identification marks and the locations of the items on record Drawings.

3.5 HISTORIC TREATMENT SCHEDULE

A. Spaces, areas, rooms, and surfaces requiring special care and treatment to ensure successful **rehabilitation**, **restoration and reconstruction** are **indicated on Drawings and generally described below**.

1. Exterior wood siding and trim**, restoration**
2. **Exterior wood shingles, restoration**
3. Exterior wood columns, restoration
4. Exterior wood balustrade, reconstruction
5. Exterior wood porch ceiling and roof, reconstruction
6. Exterior concrete porch, restoration

END OF SECTION

01 70 00 – EXECUTION REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.
B. Pre-installation meetings.
C. Cleaning and protection.
D. Closeout procedures, except payment procedures.

1.02 RELATED SECTIONS

A. Section 01 30 00 – Administrative Requirements: Submittals procedures

1.03 SUBMITTALS

A. See Section 00 13 00 – Administrative Requirements, for submittal procedures.
B. Cutting and Patching: Submit written request in advance of cutting or alteration that 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 State Preservation Board or separate Contractor
    6. Include in request:
        i. Identification of Project
        ii. Location and description of affected work
        iii. Necessity for cutting or alteration
        iv. Description of proposed work and products to be used
        v. Alternatives to cutting and patching
        vi. Effect on work of State Preservation Board or separate Contractor
        vii. Written permission of affected separate Contractor
        viii. Date and time work will be executed

1.04 PROJECT CONDITIONS

A. Dust Control: Execute work by methods to minimize raising dust from construction operations.
B. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
C. Protect site from puddling or running water
D. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
E. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.

1.05 COORDINATION

A. Coordinate work of alterations and renovations to expedite completion sequentially and to accommodate occupancy requirements.
B. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
C. Coordinate completion and clean-up of work of separate sections.
D. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
B. Verify that demolition is complete in alterations areas and areas are ready for installation of new work.
C. Examine and verify specific conditions described in individual specification sections.
D. Verify that utility services are available, of the correct characteristics, and in the correct locations.

3.02 PRE-INSTALLATION MEETINGS

A. When required in individual specification sections, convene a pre-installation meeting at the 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 Architect four days in advance of meeting date.
D. Prepare agenda and preside at meeting:
    a. Review conditions of examination, preparation, and installation procedures.
    b. Review coordination with related work.
E. Record minutes and distribute copies by email within two days after meeting to participants, and those affected by decisions made.

3.03 LAYING OUT THE WORK

A. Promptly notify Architect of any discrepancies discovered.
B. Contractor shall locate and protect survey control and reference points.
C. Update drawings with any deviation from dimensions indicated.

3.04 PROGRESS CLEANING

A. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.05 PROTECTION OF INSTALLED WORK

A. Protect installed work, including landscaping, walkways, sidewalks, and curbs from damage by construction operations.
B. Provide special protection where specified in individual specifications sections.
C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
D. Prohibit traffic from landscaped areas.

3.06 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.
    a. Clean areas to be occupied by State Preservation Board prior to final completion before occupancy.
    b. Use cleaning materials that are nonhazardous.
    c. Clean site; sweep paved areas, rake clean landscaped surfaces.
    d. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in a legal manner; do not burn or bury.
B. Notify Architect when work is considered ready for Substantial completion.

3.10 CLOSEOUT PROCEDURES

C. Make submittals that are required by governing or other authorities.
D. Notify Architect when work is considered ready for Substantial completion.
E. Submit written certification that contract documents have been reviewed, work has been inspected, and that work is complete in accordance with contract Documents and ready for Architect’s review.
F. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to owner-occupied areas.
G. Notify Architect when work is considered Finally Complete
H. Complete items of work determined by Architect’s Final Inspection.

END OF SECTION

01 78 00 – CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents
B. Operation and Maintenance Data
C. Warranties and Bonds

1.02 RELATED SECTIONS

A. Section 01 30 00 – Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
B. Individual Product Sections: Warranties required for specific products or Work.
C. Individual Product Sections: Warranties as required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.
B. Warranties and Bonds:
    1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
    2. Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
    3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 – PRODUCTS *NOT USED*

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work;
    a. Drawings
    b. Specifications
    c. Addenda
    d. Change Orders and other modifications to the Contract
    e. Reviewed shop drawings, product data, and samples
    f. Manufacturer's instructions for assembly, installation, and adjusting

B. Ensure entries are complete and accurate, enabling future reference by State Preservation Board.
C. Store record documents separate from documents used for construction.
D. Record information concurrent with construction progress.
E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
    a. Manufacturer’s name and product model and number.
    b. Product substitutions utilized
    c. Changes made by addenda and modifications.
F. Record drawings and shop drawings: Legibly mark each item to record actual construction including:
    a. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
    b. Field changes of dimension and detail.
    c. Details not on original contract drawings.

3.02 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work. Except for items put into use with Owner’s permission, leave date of beginning of time of warranty until the Date of Substantial Completion is determined.
B. Verify that documents are in proper form, contain full information, and are notarized.
C. Co-execute submittals when required.
D. Retain warranties and bonds until time specified for submittal.
E. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project, name, address and telephone number of Contractor and equipment supplier, and name of responsible company principal
F. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project manual, with each item identified with the number and title of the specification section in which specified, and the name of the product or work item.
G. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

END OF SECTION

SECTION 02 41 19 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Demolition and removal of selected site elements.
3. Salvage of existing items to be reused or recycled.

1.2 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes the property of the 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 Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.3 PREINSTALLATION MEETINGS

A. Pre-demolition Conference: Conduct conference at the Caretaker Cottage.

1.4 INFORMATIONAL SUBMITTALS

A. Existing Condition Report: Submit a report providing documentation of the existing interior and exterior conditions near the work areas. The report should include photo/video documentation focusing on areas that will need to be returned to prior conditions, areas damaged before the Work is started, and field conditions that do not match the Construction Documents.

B. Proposed Protection Measures: Submit a report, including Drawings, that indicates the measures proposed for protecting **individuals and property, environmental protection, dust control, and noise control.** Indicate proposed locations and construction of barriers.

C. Schedule of selective demolition activities with starting and ending dates for each activity.

D. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician.

1.5 CLOSEOUT SUBMITTALS

A. Inventory of items that have been removed and salvaged.

1.6 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.7 FIELD CONDITIONS

A. The Owner will occupy and hold burial ceremonies adjacent to the selective demolition area. Conduct selective demolition so the Owner's operations will not be disrupted.

B. Conditions existing at the time of inspection for bidding purposes will be maintained by the Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. The Owner will remove hazardous materials before the start of the Work.
2. If suspected hazardous materials are encountered, do not disturb; immediately notify the Architect and Owner. The Owner will remove hazardous materials under a separate contract.

E. Storage or sale of removed items or materials on-site is not permitted.

F. 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.

G. Arrange a selective demolition schedule so as not to interfere with Owner's operations.

1.8 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 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 ASSE A10.6 and NFPA 241.

EXECUTION

2.2 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. **Perform** an engineering survey of the building's condition to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of the structure or adjacent structures during selective building demolition operations.

C. Inventory and record the condition of items to be removed and salvaged.

2.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

1. The Owner will arrange to shut off indicated services systems (except electrical) when requested by the Contractor.
2. Arrange to shut off utilities with utility companies. Contact Austin Energy and schedule disconnection of existing electrical service.
3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass selective demolition and maintain continuity of services/systems to other parts of the building.

2.4 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

C. Remove temporary barricades and protections where hazards no longer exist.

2.5 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Do not use cutting torches until the work area is cleared of flammable materials. Concealed spaces, such as duct and pipe interiors, verify the condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
4. Maintain fire watch during and for at least two hours after flame-cutting operations.
5. Locate selective demolition equipment and remove debris and materials to not impose excessive loads on supporting walls, floors, or framing.
6. **Dispose of demolished items and materials per the City of Austin – Commercial Collection waste disposal requirements and coordinate with the State Preservation Board for dumpster locations.**

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and adjacent occupied and used facilities.

C. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify the contents of containers.
3. Store items in a secure area until delivery to the Owner.
4. Transport items to Owner's storage area **designated by Owner**.
5. Protect items from damage during transport and storage.

D. Removed and Reinstalled Items:
   1. Clean and repair items to functional condition adequate for intended reuse.
   2. Pack or crate items after cleaning and repairing. Identify the contents of containers.
   3. Protect items from damage during transport and storage.
   4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition **and cleaned** and reinstalled in their original locations after selective demolition operations are complete.

2.6 CLEANING

A. Remove demolition waste materials from Project site per City of Austin – Commercial Collection waste disposal requirements and coordinate with the State Preservation Board
   1. Do not allow demolished materials to accumulate on-site.
   2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
   3. Remove debris from elevated portions of the building by chute, hoist, or other devices that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

C. Clean adjacent structures and construction dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to the condition existing before selective demolition operations began.

END OF SECTION

SECTION 02 42 96 - HISTORIC REMOVAL AND DISMANTLING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes historic treatment procedures for selective demolition work for designated historic spaces, areas, rooms, and surfaces.

B. Related Requirements:

1. Section 01 35 91 "Historic Treatment Procedures" for general historic treatment requirements.

1.2 DEFINITIONS

A. Dismantle: To disassemble or detach a historic item from a surface, or a non-historic item from a historic surface, using gentle methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

B. Existing to Remain: Existing items that are not to be removed or dismantled, except to the degree indicated for performing required Work.

C. Remove: To take down or detach a non-historic item located within a historic space, area, or room, using methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

D. Retain: To keep existing items that are not to be removed or dismantled.

E. Salvage: To protect removed or dismantled items and deliver them to the Owner.

1.3 PRECONSTRUCTION MEETINGS

A. Preconstruction Conference(s): Conduct conference(s) at Project site, Caretaker Cottage.

1. Review minutes of Preliminary Historic Treatment Conference that pertain to removal and dismantling procedures and protection of historic areas and surfaces.
2. Review the list of items indicated to be salvaged.
3. Review methods and procedures related to removal and dismantling work.
4. Review fire prevention.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For historic removal and dismantling specialist.

B. Preconstruction Documentation: Show preexisting conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by Contractor's removal and dismantling operations.

C. Inventory of Salvaged Items: After removal or dismantling work is complete, submit a list of items that have been salvaged.

1.5 QUALITY ASSURANCE

A. Historic Removal and Dismantling Specialist Qualifications: A qualified historic treatment specialist. General selective demolition experience is an insufficient experience for historic removal and dismantling Work.

B. Removal and Dismantling Historic Treatment Program: Prepare a written, detailed description of materials, methods, equipment, and sequence of operations to be used for each phase of removal and dismantling Work, including protecting surroundings substrate materials and Project site.

C. Regulatory Requirements: Comply with notification regulations of authorities having jurisdiction before beginning removal and dismantling Work. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.6 FIELD CONDITIONS

A. Conditions existing at the time of inspection for bidding purposes will be maintained by the Owner as far as practical.

1. Before removal and dismantling, the Owner will remove the following items:

a. To be determined.

B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling Work.

C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
   1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. The Owner will remove hazardous materials under a separate contract.
      a. In the case of asbestos, stop Work in the area of a potential hazard, shut off fans and other air handlers ventilating the area, and rope off the area until the questionable material is identified. Reassign workers to continue Work in unaffected areas. Resume work in the area of concern after safe working conditions are verified.

D. Storage or sale of removed or dismantled items on-site is not permitted unless otherwise indicated.

PART 2 - PRODUCTS - (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Preparation for Removal and Dismantling: Examine construction to be removed or dismantled to determine best methods to safely and effectively perform removal and dismantling Work.
   1. Verify that affected utilities are disconnected and capped.
   2. Inventory and record the condition of items to be removed and dismantled for reinstallation or salvage. Enter this information on the submittal of inventory of salvaged items.
   3. Engineering Survey: Engage a professional engineer to survey the building's condition to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of the structure or adjacent structures as a result of removal and dismantling Work.

B. Survey of Existing Conditions: Record existing conditions by use of **preconstruction photographs**.

C. Perform surveys as the Work progresses to detect hazards resulting from historic removal and dismantling procedures.

3.2 HISTORIC REMOVAL AND DISMANTLING

A. General: Have removal and dismantling work performed by a qualified historic removal and dismantling specialist.

B. Perform Work according to the historic treatment program.

C. Water-Mist Sprinkling: Use water-mist sprinkling and other wet methods to control dust only with adequate, approved procedures and equipment according to the historic treatment program. The Contractor ensures that such water does not create undesired moisture conditions that affect other building areas or materials.

D. Anchorages:

1. Remove anchorages associated with removed items.
2. Dismantle anchorages associated with dismantled items.
3. In non-historic surfaces, patch holes were created by anchorage removal or dismantling according to new Work requirements.
4. In historic surfaces, patch or repair holes created by anchorage removal or dismantling according to Section that is specific to the historic surface being patched.

END OF SECTION

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. The Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Design Mixtures: For each concrete mixture.

C. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement.

1.3 INFORMATIONAL SUBMITTALS

A. Material certificates.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products, and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities.

1.5 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 306.1.

1. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

B. Hot-Weather Placement: Comply with ACI 301.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301.
2. ACI 117.

2.2 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete to be formed with the largest practicable sizes to minimize the number of joints.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for a tight fit.

2.3 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."

2.4 CONCRETE MATERIALS

A. Cementitious Materials:

1. Portland Cement: ASTM C 150/C 150M, **Type II**, **gray**.
2. Fly Ash: ASTM C 618, **Class F or C**.
3. Slag Cement: ASTM C 989/C 989M, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33/C 33M, graded.

1. Maximum Coarse-Aggregate Size: **1-inch** nominal.

C. Air-Entraining Admixture: ASTM C 260/C 260M.

D. Chemical Admixtures: Certified by the manufacturer to be compatible with other admixtures and do not contribute water-soluble chloride ions exceeding those

permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

E. Water: ASTM C 94/C 94M **and potable**.

2.5 WATERSTOPS

A. Flexible Rubber Waterstops: CE CRD-C 513, **with factory-installed metal eyelets,** embedding in concrete to prevent the passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.

2.6 VAPOR RETARDERS

A. Sheet Vapor Retarder: ASTM E 1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape.

2.7 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film-forming, manufactured for application to fresh concrete.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film, or white burlap-polyethylene sheet.

C. Water: Potable.

2.8 RELATED MATERIALS

A. Expansion and Isolation-Joint-Filler Strips: **ASTM D 1751, asphalt-saturated cellulosic fiber**.

2.9 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned based on laboratory trial mixture or field test data, or both, according to ACI 301.

B. Cementitious Materials: Use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.

2.10 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Normal-Weight Concrete:

1. Minimum Compressive Strength: **4,000 psi** at 28 days.
2. Maximum W/C Ratio: **0.45**.
3. Slump Limit: **4 inches for concrete with a verified slump**, plus or minus 1 inch. Retain one or more "Air Content" subparagraphs below. Percentages in options in the first two subparagraphs are default air contents required by ACI 301 (ACI 301M) for severe exposure.
4. Air Content: **6** percent, plus or minus 1.5 percent at the delivery time for a **1-inch** nominal maximum aggregate size.

2.11 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement, according to CRSI's "Manual of Standard Practice."

2.12 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

1. When the air temperature is between 85 and 90 degrees F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 degrees F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK INSTALLATION

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads. Construction loads that might be applied until the structure can support such loads.

B. Construct formwork - so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. **Do not chamfer** exterior corners and edges of permanently exposed concrete.

3.2 EMBEDDED ITEM INSTALLATION

A. Place and secure anchorage devices and other embedded items required for adjoining work attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 VAPOR-RETARDER INSTALLATION

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.

1. Lap joints 6 inches and seals with manufacturer's recommended tape.

3.4 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

1. Do not cut or puncture the vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.5 JOINTS

A. General: Construct joints true to line with faces perpendicular to the surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least **one-fourth** of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of the joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.

2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

3.6 WATERSTOP INSTALLATION

A. Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions.

3.7 CONCRETE PLACEMENT

A. Before placing concrete, verify that the installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.

B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

3.8 FINISHING FORMED SURFACES

A. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces **to receive a rubbed finish, to match existing**.

B. Rubbed Finish: Apply the following to smooth-formed-finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.

C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.9 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, re-straightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

1. After float finishing, immediately roughen the trafficked surface by brooming with fiber-bristle broom perpendicular to the main traffic route. Coordinate required final finish with Architect before application.

3.10 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Formed Surfaces: Cure formed concrete surfaces, including the underside of beams, supported slabs, and other similar surfaces. If forms remain during the curing period, moist cure after loosening forms. If removing forms before the end of the curing period, continue curing for the remainder of the curing period.

C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during the curing period, using cover material and waterproof tape.
3. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat the process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during the curing period.

3.11 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

END OF SECTION

SECTION 06 03 12 - HISTORIC WOOD REPAIR

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes historic treatment of wood in the form of repairing wood features as follows:

1. Repairing wood siding, **columns**, **shingles, and trim**.
2. Replacing wood siding, **columns, shingles, and trim**.
3. Repairing, refinishing, and replacing hardware.

B. Related Requirements:

1. Section 01 35 91 "Historic Treatment Procedures" for general historic treatment requirements.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at **Project site**.

1. Review minutes of Preliminary Historic Treatment Conference that pertain to historic wood repair and fire protection.
2. Review methods and procedures related to the historic wood repair.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include plans, elevations, and sections showing locations and details of each new unit and its location in the building on annotated plans and elevations.

C. Samples: For each exposed product and each color and texture specified.

1.4 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic wood-repair specialist experienced repairing, refinishing, and replacing wood in whole and part. Experience only in fabricating and installing new woodwork is not sufficient experience for wood historic treatment work.

B. Wood-Repair-Material Manufacturer Qualifications: A firm regularly engaged in producing **wood consolidant and wood-patching compounds** used for similar historic wood-treatment applications with successful results, and with factory-authorized service representatives who are available for consultation, Project-site inspection, and on-site assistance.

C. Mockups: Prepare mockups of historic treatment repair processes to demonstrate aesthetic effects and set quality standards for materials and execution and fabrication and installation. Prepare mockups, so they are as inconspicuous as practicable.

1. Wood siding Repair: Prepare an approximately **24x24 inch** area of siding to serve as a mockup to demonstrate each type of wood repair samples.
2. Wood shingles repair: prepare an approximately 24x24 inch area of shingles to serve as a mockup to demonstrate wood restoration repair samples.

PART 2 - PRODUCTS

2.1 HISTORIC WOOD REPAIR, GENERAL

A. Quality Standard: Comply with applicable requirements in Section 12, "Historic Restoration Work," and related requirements in AWI/AWMAC/WI's "Architectural Woodwork Standards" for construction, finishes, grade rules, and other requirements unless otherwise indicated.

1. Exception: Industry practices cited in Section 12, Article 1.5, "Industry Practices," of the Architectural Woodwork Standards do not apply to the work of this Section.

2.2 REPLICATED WOOD ITEMS

A. Replicated Wood siding **Columns** if needed: Custom-fabricated replacement wood units and components.

1. Adams Architectural Millwork Co.,https://adamsarch.com/;
2. Wood Species: **Match species of existing wood**.
3. Wood Member and Trim Profiles: Match profiles and detail of existing.

2.3 WOOD-REPLACEMENT MATERIALS

A. Wood, General: Clear fine-grained lumber; kiln-dried to a moisture content of 6 to 12 percent at the time of fabrication; free of visible finger joints, blue stain, knots, pitch pockets, and surface checks larger than 1/16 inch deep by 2 inches wide.

1. Species: **Match species of each existing type of wood component or assembly** unless otherwise indicated.

2.4 WOOD-REPAIR MATERIALS

A. Wood Consolidant: Ready-to-use product designed to penetrate, consolidate, and strengthen soft fibers of wood materials that have deteriorated due to weathering and decay and designed specifically to enhance the wood-patching compound's bond to existing wood.

1. Abatron, Inc.
2. ConServ Epoxy LLC

B. Wood-Patching Compound: Two-part, epoxy-resin, wood-patching compound; knife-grade formulation recommended in writing by the manufacturer for type of wood repair indicated, tooling time required for the detail work, and site conditions. The compound shall be designed for filling voids in damaged wood materials that have deteriorated due to weathering and decay. The compound shall be capable of filling deep holes and spreading to featheredge.

1. Abatron, Inc.
2. Advanced Repair Technology, Inc.
3. ConServ Epoxy LLC

2.5 MISCELLANEOUS MATERIALS

A. Borate Preservative Treatment: Inorganic, borate-based solution, with disodium octaborate tetrahydrate as the primary ingredient; manufactured for preserving weathered and decayed wood from further damage caused by fungi and wood-boring insects; complying with AWPA P5; containing no boric acid.

B. Cleaning Materials:

1. Detergent Solution: Solution prepared by mixing 2 cups of tetrasodium pyrophosphate (TSPP), 1/2 cup of laundry detergent that contains no ammonia, 5 quarts of 5 percent sodium hypochlorite bleach, and 15 quarts of warm water for each 5 gal. of solution required.
2. Mildewcide: Commercial, proprietary mildewcide or a solution prepared by mixing 1/3 cup of household detergent that contains no ammonia, 1 quart of 5 percent sodium hypochlorite bleach, and 3 quarts of warm water.

C. Adhesives: Wood adhesives with minimum 15- to 45-minute cure at 70 deg F, in gunnable and liquid formulations recommended in writing by the adhesive manufacturer for each type of repair and exposure condition.

D. Fasteners: Use fastener metals that are non-corrosive and compatible with each material joined.

1. Match existing fasteners in material and type of fastener unless otherwise indicated.
2. Use concealed fasteners for interconnecting wood components.
3. Use concealed fasteners for attaching items to other work unless exposed fasteners are **unavoidable or the existing fastening method**.
4. Countersink finish nails, and apply wood filler and sand to a smooth finish.

5. For fastening metals, use fasteners of the same basic metal as fastened metal unless otherwise indicated.
6. For exposed fasteners, use Phillips-type machine screws of head profile flush with metal surface unless otherwise indicated.
7. Finish exposed fasteners to match the finish of metal fastened unless otherwise indicated.

2.6 WOOD FINISHES

A. Unfinished Replacement Units: Provide exposed **exterior** wood surfaces of replacement units unfinished; smooth, filled, and suitably prepared for on-site priming and finishing.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean wood of mildew, algae, moss, plant material, loose paint, grease, dirt, and other debris by scrubbing with bristle brush or sponge and detergent solution. Scrub mildewed areas with mildewcide. After cleaning, rinse thoroughly with fresh water. Allow drying before repairing or painting.

B. Condition replacement wood members and replacement units to prevailing conditions at installation areas before installing.

3.2 HISTORIC WOOD REPAIR, GENERAL

A. General: In treating historic items, disturb them as minimally as possible and as follows:
1. Stabilize and repair wood to reestablish structural integrity and weather resistance while maintaining each item's existing form.
2. Remove coatings and apply borate preservative treatment before repair. Remove coatings according to Section 09 03 91 "Historic Treatment of Plain Painting" unless otherwise indicated.
3. Repair items in a place where possible.
4. Install temporary protective measures to protect wood-treatment work that is indicated to be completed later.
5. Refinish historic wood according to Section 09 03 91 "Historic Treatment of Plain Painting" unless otherwise indicated.

B. Mechanical Abrasion: Where mechanical abrasion is needed for the work, use only the gentlest mechanical methods, such as scraping and natural-fiber bristle brushing, that

will not abrade wood substrate, reducing clarity of detail. Do not use abrasive methods, such as sanding, wire brushing, or power tools, except as approved by Architect.

C. Repair Wood: Match existing materials and features, retaining as much original material as possible to perform repairs.
   1. Unless otherwise indicated, repair wood by consolidating, patching, splicing, or otherwise reinforcing wood with new wood matching existing wood or salvaged, sound, original wood.
   2. Where indicated, repair wood by limited replacement matching existing material.

D. Replace Wood: Where indicated, duplicate and replace units with units made from salvaged, sound, original wood or new wood matching existing wood. Use surviving prototypes to create patterns for duplicate replacements.

E. Identify removed items with a numbering system corresponding to item locations to ensure reinstallation in the same location.

3.3 WOOD PATCH-TYPE REPAIR

A. General: Patch wood that exhibits depressions, holes, or similar voids and that has limited amounts of rotted or decayed wood.
   1. Treat wood with wood consolidant before application of patching compound. Coat wood surfaces by brushing, applying multiple coats until the wood is saturated and refuses to absorb more. Allow treatment to harden before filling the void with a patching compound.

B. Apply borate preservative treatment to accessible surfaces either before applying wood consolidant or after removing rotted or decayed wood.

C. Apply wood-patching compound to fill depressions, nicks, cracks, and other voids created by removed or missing wood.
   1. Prime patch area with the application of wood consolidant or manufacturer's recommended primer.
   2. Apply patching compound in layers as recommended in writing by the manufacturer until the void is completely filled.
   3. Sand patch surface smooth and flush with adjacent wood, without voids in patch material, and matching contour of the wood member.

3.4 WOOD-REPLACEMENT REPAIR

A. General: Replace parts of or entire wood items at locations **where damage is too extensive to patch**.

1. Remove broken, rotted, and decayed wood down to sound wood.
2. Custom fabricate a new wood piece to replace missing wood; either replace the entire wood member or splice new wood parts into existing members.
3. Secure new wood using finger joints, multiple dowels, or splines with adhesive and nailing to ensure maximum structural integrity at each splice. Use only concealed fasteners. Fill nail holes and patch the surface to match surrounding sound wood.

B. Apply borate preservative treatment to accessible surfaces after replacements are made. Apply treatment liberally by brush to joints, edges, and ends; top, sides, and bottom.

C. Repair remaining depressions, holes, or similar voids with patch-type repairs.

D. Reinstall items removed for repair into original locations.

END OF SECTION

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.
2. Framing with engineered wood products.
3. Wood blocking and nailers.
4. Wood furring and grounds.
5. Wood sleepers.
6. Plywood backing panels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

B. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Fire-retardant-treated wood.
3. Engineered wood products.
4. Shear panels.
5. Power-driven fasteners.
6. Post-installed anchors.
7. Metal framing anchors.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with the grade stamp of the grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, **mark grade stamp on each piece's end or back**.
3. Dress lumber, S4S, unless otherwise indicated.
4. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.

B. Maximum Moisture Content of Lumber: **15 percent for 2-inch nominal thickness or less; no limit for more than 2-inch nominal thickness** unless otherwise indicated.

C. Engineered Wood Products: Acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

1. Allowable design stresses, as published by the manufacturer, shall meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 **for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground**.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. **Do not use inorganic boron (SBX) for sill plates.**

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use a material that is warped or that does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat **all rough carpentry unless otherwise indicated.:**

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members connect with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, **furring, stripping,** and similar concealed members contact masonry or concrete.
3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
4. Wood framing members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.
5. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, materials shall comply with this article's requirements that are acceptable to authorities having jurisdiction. With fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.

C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.

E. Application: Treat **all rough carpentry unless otherwise indicated.**

2.4 DIMENSION LUMBER FRAMING

A. Load-Bearing Partitions: No. 1 grade
   1. Application: Exterior Walls
   2. Species:
      a. Southern pine; SPIB

B. Joist, Rafters, and Other Framing Not Listed Above: **No. 2** grade.
   1. Species:
      a. Southern pine; SPIB.

C. Exposed Framing: Hand-select material for uniformity of appearance and freedom from characteristics on exposed surfaces and edges that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.
   1. Species and Grade: As indicated above for load-bearing construction of the same type.

2.5 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
   1. Blocking.
   2. Nailers.
   3. Rooftop equipment bases and support curbs.
   4. Cants.
   5. Furring.
   6. Grounds.

B. Dimension Lumber Items: Construction or **No. 2 grade lumber** of any species.

C. For Blocking not used for attachment of other construction, Utility, Stud, or **No. 3 grade lumber** of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

D. For blocking and nailers used for attachment of other construction, select and cur lumber to eliminate knots and other defects that will interfere with other work attachments.

E. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to the paneling.

F. Concealed Boards: **15** percent maximum moisture content and the following species and grades:

1. Mixed southern pine or southern pine; No. **2** grade; SPIB.

2.6 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: Plywood, DOC PS 1, **fire-retardant treated,** in thickness indicated or, if not indicated, not less than **3/4-inch** nominal thickness.

2.7 FASTENERS

A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in-ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners **with hot-dip zinc coating complying with ASTM A 153/A 153M**.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1.

F. Bolts: Steel bolts complying with ASTM A 307, Grade A; ASTM A 563 hex nuts and, where indicated, flat washers.

G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by qualified independent testing and inspecting agency.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2.8 METAL FRAMING ANCHORS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, but are not limited to, the following:

1. Cleveland Steel Specialty Co.
2. KC Metals Products, Inc.
3. Phoenix Metal Products, Inc.
4. Simpson Strong-Tie Co. Inc.
5. USP Structural Connectors

B. Allowable design loads, as published by the manufacturer, shall meet or exceed those **of products of manufacturers listed**. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency. Framing anchors shall be punched for fasteners adequate to withstand the same loads as framing anchors.

C. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.

1. Use for interior locations unless otherwise indicated.

D. Hot-Dip, Heavy-Galvanized Steel Sheet: ASTM A 653/A 653M; structural steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G185 coating designation; and not less than 0.036-inch thick.

1. Use for wood-preservative-treated lumber and where indicated.

2.9 MISCELLANEOUS MATERIALS

A. Sill-Sealer Gaskets: Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; 1-inch nominal thickness, compressible to 1/32-inch; selected from manufacturer's standard widths to suit the width of sill members indicated.

B. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, **butyl rubber** compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025-inch.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Framing with Engineered Wood Products: Install engineered wood products to comply with the manufacturer's written instructions.

C. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate **furring,** nailers, blocking, **grounds,** and similar supports to comply with requirements for attaching other construction.

D. Install shear wall panels to comply with the manufacturer's written instructions.

E. Install metal framing anchors to comply with the manufacturer's written instructions. Install fasteners through each fastener hole.

F. Do not splice structural members between supports unless otherwise indicated.

G. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

H. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

I. Securely attach rough carpentry work to the substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).
2. ICC-ES evaluation report for the fastener.

3.2 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from the weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from the weather. If, despite protection, rough carpentry becomes **wet enough that moisture content exceeds that specified**, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION

SECTION 06 15 16 - WOOD ROOF DECKING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes solid-sawn wood roof decking.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 WOOD ROOF DECKING, GENERAL

A. General: Comply with DOC PS 20 and with applicable grading rules of inspection agencies certified by ALSC's Board of Review.

2.2 SOLID-SAWN WOOD ROOF DECKING

A. Solid-Sawn Wood Roof Decking: Comply with AITC 112.

B. Roof Decking Species: Balsam fir, Douglas fir-larch, Douglas fir-larch (North), hem-fir, hem-fir (North), southern pine, spruce pine-fir (North), western hemlock, or western hemlock (North).

C. Roof Decking Nominal Size: 2 by 6.

D. Roof Decking Grade: Select(ed) Decking or Select Dex.

E. Grade Stamps: Factory mark each item with the grade stamp of the grading agency. Apply grade stamps to surfaces that are not exposed to view.

F. Moisture Content: Provide wood roof decking with 15 percent maximum moisture content at the time of dressing.

G. Face Surface: Rough sanded or wire brushed.

H. Edge Pattern: Channel grooved.

2.3 ACCESSORY MATERIALS

A. Fastener Material: Hot-dip galvanized steel.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install solid-sawn wood roof decking to comply with AITC 112.

1. Locate end joints to match existing joint patterns.

B. Anchor wood roof decking with bolts as indicated where supported on walls.

3.2 PROTECTION

A. Provide a water-resistive barrier over roof decking as the Work progresses to protect roof decking until roofing is applied.

END OF SECTION

SECTION 06 16 00 – SHEATHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Specifications for roof and wall sheathing are included in this section. New roof sheathing to be provided as part of the project. Wall sheathing is not currently required, but the Contractor will notify the Architect when demolition of the siding is completed to evaluate the need for possible wall sheathing.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance Ratings: As tested according to ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.2 WOOD PANEL PRODUCTS

A. Emissions: Products shall meet the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.3 PRESERVATIVE-TREATED PLYWOOD

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.

B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.

C. Application: Treat all plywood unless otherwise indicated.

2.4 FIRE-RETARDANT-TREATED PLYWOOD

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article acceptable to authorities having jurisdiction.

B. Fire-Retardant-Treated Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84. Per ASTM E 4, there should be no evidence of significant progressive combustion when the test is extended an additional 20 minutes with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201/D 3201M at 92 percent relative humidity. Use where exterior type is not indicated.
3. Design Value Adjustment Factors: Treated lumber plywood shall be tested according to ASTM D 5516, and design value adjustment factors shall be calculated according to ASTM D 6305. Span ratings after treatment shall be not less than span ratings specified. For roof sheathing and where high-temperature fire-retardant treatment is indicated, span ratings for temperatures up to 170 deg F shall be not less than span ratings specified.

C. Kiln-dry material after treatment to a maximum moisture content of 15 percent.

D. Identify fire-retardant-treated plywood with appropriate classification marking of qualified testing agency.

E. Application: Treat all plywood unless otherwise indicated.

2.5 WALL SHEATHING

A. Plywood Sheathing: Either DOC PS 1 or DOC PS 2, sheathing.

2.6 ROOF SHEATHING

A. Plywood Sheathing: Either DOC PS 1 or DOC PS 2, sheathing.

2.7 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. For roof and wall sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair the quality of sheathing or pieces that are too small to use with a minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Cut panels at penetrations, edges, and other work obstructions; fit tightly against abutting construction unless otherwise indicated.

C. Securely attach to the substrate by fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in the ICC's International Building Code.
2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in the ICC's International Residential Code for One- and Two-Family Dwellings.
3. ICC-ES evaluation report for the fastener.

D. The Contractor is to coordinate wall and roof sheathing installation with flashing and joint-sealant installation in a sequence and manner that prevents exterior moisture from passing through the completed assembly.

E. Do not bridge building expansion joints; cut and space edges of panels to match structural support elements' spacing.

3.2 WOOD STRUCTURAL PANEL INSTALLATION

A. Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.

B. Fastening Methods: Fasten panels, as indicated below:

1. Wall and Roof Sheathing:
   a. Nail to wood framing. Apply a continuous bead of glue to framing members at the edges of wall sheathing panels.
   b. Screw to cold-formed metal framing.
   c. Space panels 1/8 inch apart at edges and ends.
2. Underlayment:
   a. Nail or staple to subflooring.
   b. Space panels 1/32 inch apart at edges and ends.
   c. Fill and sand edge joints of underlayment receiving resilient flooring immediately before installing flooring.

END OF SECTION

SECTION 06 20 13 - EXTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 This section is to be fully coordinated with Section 06 03 12 "Historic Wood Repair" and Construction Drawings. This section applies to new exterior finish carpentry required to infill where historic wood has deteriorated beyond repair covers directions for the proposed new porch soffit.

1.2 SUMMARY

A. Section Includes:

1. Exterior wood trim.
2. Lumber siding.
3. Lumber soffits.

1.3 DEFINITIONS

A. MDO: Plywood with a medium-density overlay on the face.

B. PVC: Polyvinyl chloride.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

B. Samples: For each exposed product and each color and texture specified.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with applicable rules of any rules-writing agency certified by the American Lumber Standard Committee's (ALSC) Board of Review. Grade lumber by an agency certified by the ALSC's Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with the grade stamp of inspection agency, indicating grade, species, moisture content at the time of surfacing, and mill.
2. For exposed lumber, mark grade stamps on the end or back of each piece.

B. Softwood Plywood: DOC PS 1.

C. Hardboard: ANSI A135.4.

D. Engineered Polymer Stock Material (AZEK)

2.2 EXTERIOR TRIM

A. Lumber Trim for Painted Finish:

1. Species and Grade: Redwood; RIS Grade B.
2. Species and Grade: Western red cedar; NLGA, WCLIB, or WWPA Grade B.
3. Species and Grade: Hem-fir; NLGA, WCLIB, or WWPA Prime or D finish.
4. Species and Grade: Eastern white pine, eastern hemlock-balsam fir-tamarack, eastern spruce, or white woods; NeLMA, NLGA, WCLIB, or WWPA Finish or 1 Common (Colonial).
5. Species and Grade: Northern white cedar; NeLMA or NLGA 1 Common.
6. Maximum Moisture Content: 15 percent with at least 85 percent of shipment at 12 percent or less.
7. Finger Jointing: Not allowed.
8. Face Surface: Surfaced (smooth).
9. Factory Priming: Factory coated on both faces and edges, with exterior primer compatible with topcoats specified.

2.3 LUMBER SIDING

A. Match existing historic siding in-kind for any panels that need replacement.

2.4 LUMBER SOFFITS

A. Provide kiln-dried lumber siding complying with DOC PS 20, factory coated with an exterior primer compatible with topcoats specified.

B. Provide perforations in soffit as needed.

C. Species and Grade: Southern pine; SPIB C & Btr.

D. Pattern: Beaded ceiling, tongue and groove, actual face width (coverage), and thickness of 3-1/8 by 3/8 inch.

2.5 MISCELLANEOUS MATERIALS

A. Fasteners for Exterior Finish Carpentry: Provide nails or screws with sufficient length to penetrate not less than 1-1/2 inches into the wood substrate.

1. For face-fastening siding, provide ringed-shank siding nails or hot-dip galvanized-steel siding nails.
2. For prefinished items, provide matching prefinished aluminum fasteners where face fastening is required.
3. For pressure-preservative-treated wood, provide hot-dip galvanized-steel fasteners.

4. For applications not otherwise indicated, provide hot-dip galvanized-steel fasteners.

B. Flashing: Comply with requirements in Section 076200 "Sheet Metal Flashing and Trim" for flashing materials installed in exterior finish carpentry.
   1. Horizontal Joint Flashing for Panel Siding: Preformed, stainless steel, Z-shaped flashing.

C. Insect Screening for Soffit Vents: Stainless steel, 18-by-18-inch mesh.

D. Sealants: Latex, complying with ASTM C834 Type OP, Grade NF and applicable requirements in Section 079200 "Joint Sealants," recommended by sealant and substrate manufacturers for the intended application.
   1. Manufacturers: Subject to compliance with requirements, provide products by the following:
      a. Tremco, Inc.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrates of projections and substances detrimental to application.

B. Prime lumber and moldings to be painted, including both faces and edges, unless factory-primed.
   1. Cut to required lengths and prime ends.
   2. Comply with requirements in Section 06 20 13 "Exterior Finish Carpentry."

3.2 INSTALLATION, GENERAL

A. Install exterior finish carpentry level, plumb, true, and aligned with adjacent materials.
   1. Use concealed shims where necessary for alignment.
   2. Scribe and cut exterior finish carpentry to fit adjoining work.
   3. Refinish and seal cuts as recommended by the manufacturer.
   4. Install to a tolerance of 1/8 inch in 96 inches for level and plumb. Install adjoining exterior finish carpentry with a 1/32-inch maximum offset for flush installation and a 1/16-inch maximum offset for reveal installation.
   5. Coordinate exterior finish carpentry with materials and systems in or adjacent to the new installation.
   6. Provide cutouts for mechanical and electrical items that penetrate exterior finish carpentry.

3.3 INSTALLATION OF STANDING AND RUNNING TRIM

A. Install flat-grain lumber with bark side exposed to the weather.

B. Install trim with a minimum number of joints as practical, using full-length pieces from maximum lumber lengths. Do not use pieces less than 24 inches long, except where necessary.

1. Use scarf joints for end-to-end joints.
2. Stagger end joints in adjacent and related members.

C. Fit exterior joints to exclude water.

1. Cope at returns and miter at corners to produce tight-fitting joints, with full-surface contact throughout the length of joint.
2. Plane backs of casings to provide a uniform thickness across joints, where necessary for alignment.

D. Where face fastening is unavoidable, countersink fasteners, fill surface flush, and sand unless otherwise indicated.

3.4 INSTALLATION OF SIDING

A. Install siding to comply with manufacturer's written instructions and match existing historic siding detailing and installation methods.

B. Flashing: Install metal flashing as indicated on Drawings and as recommended by the siding manufacturer.

C. Finish: Apply finish within two weeks of installation.

END OF SECTION

SECTION 07 01 50.19 - PREPARATION FOR RE-ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Full tear-off of the entire roof system.
2. Re-cover preparation of entire roof area.
3. Removal of flashings and counterflashing.

1.2 INFORMATIONAL SUBMITTALS

A. Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, that might be misconstrued as damaged by re-roofing operations.

1. Submit before Work begins.

1.3 FIELD CONDITIONS

A. Existing Roofing System: corrugated metal roof roofing.

B. The Owner will not occupy portions of the building immediately below the re-roofing area.

1. Conduct re-roofing so Owner's operations are not disrupted.
2. Provide Owner with no less than 72 hours' written notice of activities that may affect the Owner's operations.
3. Coordinate work activities daily with the Owner, so the Owner has adequate advance notice to place protective dust and water-leakage covers over sensitive equipment and furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below work area.
4. Before working over structurally impaired areas of the deck, notify the Owner to evacuate occupants from below the affected area.
    a. Verify that occupants below the work area have been evacuated before proceeding with installations over impaired deck areas.

C. Protect buildings to be re-roofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from re-roofing operations.

D. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

E. Conditions existing at the time of inspection for bidding will be maintained by the Owner as far as practical.
   1. A roof moisture survey of the existing roofing system is available for the Contractor's reference.
   2. The results of an analysis of test scores from the existing roofing system are available for the Contractor's reference.
   3. Description for existing roofing system is provided for Contractor's convenience and information, but they are not a warranty of existing conditions. They are intended to supplement rather than serve in place of the Contractor's investigations. The Contractor is responsible for conclusions derived from existing documents. Description of elements to be removed are found in the Construction Drawings.

F. Weather Limitations: Proceed with re-roofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering an existing roofing system or building.
   1. Remove only as much roofing in one day as can be made watertight in the same day.

PART 2 - PRODUCTS

2.1 AUXILIARY RE-ROOFING MATERIALS

A. General: Use auxiliary re-roofing preparation materials recommended by roofing system manufacturers for the intended use and compatible with the new roofing system components.

PART 3 - EXECUTION

3.1 PREPARATION

A. Seal or isolate windows that may be exposed to airborne substances created in the removal of existing materials.

B. Shut off rooftop utilities and service piping before beginning the Work.

C. Test existing roof drains to verify that they are not blocked or restricted.
   1. Immediately notify the Architect of any blockages or restrictions.

D. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work.
   1. Cover air-intake louvers before proceeding with re-roofing work could affect indoor air quality or activate smoke detectors in the ductwork.

E. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.

F. Maintain roof drains in functioning condition to ensure roof drainage at the end of each workday.

1. Prevent debris from entering or blocking roof drains and conductors.
    a. Use roof-drain plugs specifically designed for this purpose.
    b. Remove roof-drain plugs at the end of each workday, when no work is taking place, or when rain is forecast.
2. If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of a new roofing system, it can provide an alternative drainage method to remove water and eliminate ponding.
    a. Do not permit water to enter into or under existing roofing system components that are to remain.

3.2 ROOF TEAR-OFF

A. Lower removed roofing materials to the ground and onto lower roof levels, using dust-tight chutes or other acceptable means of removing materials from roof areas.

B. Full Roof Tear-off: Remove existing roofing and other roofing system components down to the existing rafters.

1. Remove wood purlins.
2. Remove perimeter edge flashing and gutters.
3. Remove flashings at pipes and other penetrations.
4. Remove wood blocking, curbs, and nailers.
5. Remove fasteners from rafters or cut fasteners off slightly above the rafter surface.

3.3 DECK PREPARATION

A. Inspect deck after tear-off of roofing system.

B. If broken or loose fasteners that secure deck panels to one another or to structure are observed, or if deck appears or feels inadequately attached, immediately notify Architect.

1. Do not proceed with installation until directed by Architect.

C. If the deck surface is unsuitable for receiving new roofing or if the deck's structural integrity is suspect, notify Architect.
   1. Do not proceed with installation until directed by Architect.
D. Provide additional deck securement as indicated on Drawings.
E. Replace plywood roof sheathing as indicated on Drawings.
F. Replace plywood roof sheathing as directed by Architect.
   1. Roof sheathing replacement will be paid for by adjusting the Contract Sum according to unit prices included in the Contract Documents.

3.4 ROOF RE-COVER PREPARATION

A. Remove blisters, ridges, buckles, mechanically attached roofing fastener buttons projecting above roofing, and other substrate irregularities from existing roofing that inhibit new recover boards from conforming to substrate.
   1. Remove loose aggregate from aggregate-surfaced, built-up bituminous roofing with a power broom.
   2. Broom clean existing substrate.
   3. Coordinate with the Owner's inspector to schedule times for tests and inspections.
   4. Verify that the existing substrate is dry.
      a. Spot check substrates with an electrical capacitance moisture-detection meter.
   5. Remove materials that are wet or damp.
      a. Removal will be paid for by adjusting the Contract Sum according to unit prices included in the Contract Documents.

B. Remove blisters, ridges, buckles, mechanically attached roofing fastener buttons projecting above roofing, and other substrate irregularities from existing roofing that inhibit new roofing from conforming to substrate.

1. Remove loose aggregate from aggregate-surfaced, built-up bituminous roofing with a power broom.
2. Broom clean existing substrate.
3. Coordinate with the Owner's inspector to schedule times for tests and inspections.
4. Verify that the existing substrate is dry before proceeding with the installation.
    a. Spot check substrates with an electrical capacitance moisture-detection meter.
5. Remove materials that are wet and damp.
    a. Removal will be paid for by adjusting the Contract Sum according to unit prices included in the Contract Documents.

END OF SECTION

SECTION 07 25 00 - WEATHER BARRIERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Flexible flashing.

1.2 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For flexible flashing, from ICC-ES.

PART 2 - PRODUCTS

2.1 FLEXIBLE FLASHING

A. Butyl Rubber Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber compound, bonded to a high-density polyethylene film, aluminum foil, or spun-bonded polyolefin to produce an overall thickness of not less than 0.030 inches.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   a. DuPont de Nemours, Inc.
   b. GCP Applied Technologies Inc.
   c. TYPAR.
2. Flame Propagation Test: Materials and construction shall be tested according to NFPA 285.

PART 3 - EXECUTION

3.1 WATER-RESISTIVE BARRIER INSTALLATION

A. Cover sheathing with a water-resistive barrier as follows:

1. Cut back the barrier 1/2 inch on each side of the break in the supporting members at expansion- or control-joint locations.
2. Apply barrier to cover vertical flashing with a minimum 4-inch overlap unless otherwise indicated.

B. Building Paper: Apply horizontally with a 2-inch overlap and a 6-inch end lap; fasten to the sheathing with galvanized staples or roofing nails.

C. Building Wrap: Comply with manufacturer's written instructions and warranty requirements.

1. Seal seams, edges, fasteners, and penetrations with tape.
2. Extend into jambs of openings and seal corners with tape.

3.2 FLEXIBLE FLASHING INSTALLATION

A. Apply flexible flashing where indicated to comply with manufacturer's written instructions.

1. Lap seams and junctures with other materials at least 4 inches except that laps need not exceed flange width at flashing flanges of other construction.
2. Lap flashing over the water-resistive barrier at the bottom and sides of openings.
3. Lap water-resistive barrier over flashing at heads of openings.

3.3 DRAINAGE MATERIAL INSTALLATION

A. Install drainage material over the building wrap and flashing to comply with the manufacturer's written instructions.

END OF SECTION

SECTION 07 61 00 - SHEET METAL ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes custom-fabricated, flat-seam standing-seam sheet metal roofing.

B. Related Requirements:

1. Section 06 10 00 "Rough Carpentry" for wood battens required for batten-seam sheet metal roofing if not specified in this Section.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each of the following:

1. Roofing sheet metal.
2. Underlayment materials.
3. Fasteners.
4. Sealant tape.
5. Elastomeric sealant.
6. Butyl sealant.

B. Shop Drawings:

1. Include plans, elevations, sections, and attachment details.
2. Detail fabrication and panel installation layouts, expansion joint locations, points of fixity, and keyed details. Distinguish between shop- and field-assembled Work.
3. Include details for forming, including seams and dimensions.
4. Include details for joining and securing, including layout and spacing of fasteners, cleats, and other attachments. Include pattern of seams.
5. Include details of expansion joints, including showing the direction of expansion and contraction from points of fixity.
6. Include details of roof penetrations.
7. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, corners, flashings, and counter flashings.
8. Include details of special conditions.
9. Include details of connections to adjoining Work.

C. Samples: For each exposed product and each color and texture specified, 12 inches long by actual width.

1.4 INFORMATIONAL SUBMITTALS

A. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing sheet metals and accessories to include in maintenance manuals.

1.6 WARRANTY

A. Special Warranty on Finishes: The manufacturer agrees to repair finish or replace sheet metal roofing that begins to shows evidence of deterioration of factory-applied finishes within the specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
    a. Color fading more than 5 Delta E units when tested according to ASTM D2244.
    b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
    c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
2. Finish Warranty Period: 20 years from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Sheet metal roofing system, including, but not limited to, metal roof panels, cleats, anchors and fasteners, sheet metal flashing integral with sheet metal roofing, fascia panels, trim, underlayment, and accessories, shall comply with requirements without failure due to defective manufacture, fabrication, or installation, or due to other construction defects. Sheet metal roofing shall remain watertight.

B. Sheet Metal Roofing Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or indicated on Drawings.

C. Thermal Movements: Allow thermal movements from ambient and surface temperature changes to prevent buckling, the opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 ROOFING SHEET METALS

A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels.

B. Standing Seam Metallic-Coated Steel Sheet: Provide Tin-Plated (terne) 439 Stainless Steel sheet with a smooth, flat finish. Roofinox Tin Matte Tin

1. For standing seam roof
2. Nominal Thickness: 24 Gauge
3. Color: per manufacturer, with a natural patina
4. Refer to drawings for panel size and details

C. Stainless Steel Sheet: ASTM A240/A240M, Type 304, dead-soft, fully annealed; with a smooth, flat surface.

1. Use: For flashing as noted
2. Thickness: Nominal 24 Gauge unless otherwise indicated.
3. Finish: ASTM A480/A480M, No. 2D (dull, cold rolled).
    a. Surface Preparation: Remove tool and die marks and stretch lines, or blend into the finish.
    b. When polishing is completed, passivate, and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

2.3 UNDERLAYMENT MATERIALS

A. Synthetic Underlayment: Laminated or reinforced, woven polyethylene or polypropylene, synthetic roofing underlayment; bitumen free; slip-resistant; suitable for high temperatures over 220 deg F; and complying with physical requirements of ASTM D226/D226M for Type I and Type II felts.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    a. Atlas Roofing Corporation - MPS.
    b. Kirsch Building Products, LLC.
    c. SDP Advanced Polymer Products Inc.

B. Self-Adhering, High-Temperature Sheet Underlayment: Minimum 30 mils thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing;

specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer according to written recommendations of underlayment manufacturer.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   a. Carlisle WIP Products; a brand of Carlisle Construction Materials.
   b. GCP Applied Technologies Inc.
   c. Henry Company.
   d. Owens Corning.
2. Thermal Stability: ASTM D1970/D1970M; stable after testing at 240 deg F or higher.
3. Low-Temperature Flexibility: ASTM D1970/D1970M; passes after testing at minus 20 deg F or lower.
4. Note: PROVIDE SYNTHETIC ROOFING UNDERLAYMENT AND SELF-ADHERING SHEET UNDERLAYMENT FROM THE SAME MANUFACTURER

C. Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. minimum.

2.4 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items required for a complete roofing system and as recommended by primary sheet metal manufacturer unless otherwise indicated.

B. Fasteners: Wood screws, annular-threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.
   1. General:
      a. Exposed Fasteners: Heads matching the color of sheet metal roofing, using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on the weather side of the roofing.
      b. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed; with hex-washer head.
      c. Blind Fasteners: High-strength aluminum or stainless steel rivets suitable for the metal being fastened.

2. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel according to ASTM A153/A153M or ASTM F2329.
3. Fasteners for Stainless Steel Sheet: Series 300 stainless steel.

C. Solder:
1. For Tin Plated Stainless Steel: Pure tin or lead-free, recommended 50/50 tin/lead. Use a chloride-free flux.
2. For Stainless Steel: ASTM B32, Grade Sn60, with an acid flux of type recommended by stainless steel sheet manufacturer.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, non-sag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.

E. Elastomeric Sealant: ASTM C920, elastomeric polyurethane polymer sealant; type, grade, class, and use classifications required to seal joints in sheet metal roofing and remain watertight.

F. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy-bodied for hooked-type expansion joints with limited movement.

G. Bituminous Coating: Cold-applied asphalt emulsion according to ASTM D1187.

2.5 ACCESSORIES

A. Sheet Metal Accessories: Provide components required for complete sheet metal roofing assembly, including trim, fasciae, corner units, clips, flashings, sealants, gaskets, fillers, metal closures, closure strips, and similar items. Match material and finish of sheet metal roofing unless otherwise indicated.
1. Cleats: Intermittent and continuous attachment devices for mechanically seaming into joints and formed from the following materials and thicknesses unless otherwise indicated:
a. Metallic-Coated Steel Roofing: 0.0250-inch thick stainless steel.
b. Stainless Steel Roofing: 0.0250- inch-thick stainless steel.
2. Expansion-Type Cleats: Cleats of a design that allows longitudinal movement of roof panels without stressing panel seams; of the same material as other cleats.
3. Backing Plates: Plates at roofing splices, fabricated from material recommended by SMACNA's "Architectural Sheet Metal Manual."

4. Closure Strips: Closed-cell, expanded, cellular, rubber or cross-linked, polyolefin foam or closed-cell laminated polyethylene; minimum 1-inch- thick, flexible-closure strips; cut or pre-molded to match sheet metal roofing profile. Provide closure strips where necessary to ensure weathertight construction.
5. Flashing and Trim: Formed from the same material and with the same finish as sheet metal roofing, minimum 0.018-inch thick.

B. Pipe Flashing: Pre-molded, EPDM pipe collar with flexible aluminum ring bonded to the base.

2.6 FABRICATION

A. Custom fabricate sheet metal roofing to comply with details shown and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions (panel width and seam height), geometry, metal thickness, and other characteristics of the installation. Fabricate sheet metal roofing and accessories in a shop to the greatest extent possible.
   1. Flat-Seam Roofing: Form flat-seam panels from metal sheets 20 by 28 inches with 1/2-inch notched and folded edges.
   2. Standing-Seam Roofing: Form standing-seam panels with a finished seam height of 1-inch.

B. Form exposed sheet metal work to fit substrates with little oil canning; free of buckling and tool marks; true to line, levels, and slopes; and exposed edges folded back to form hems.
   1. Layout the sheet metal roofing, so transverse seams, if required, are made in the direction of flow, with higher panels overlapping lower panels.
   2. Offset transverse seams from each other 12-inch minimum.
   3. Fold and cleat eaves and transverse seams in the shop.
   4. Form and fabricate sheets, seams, strips, cleats, valleys, ridges, edge treatments, integral flashings, and other metal roofing components to profiles, patterns, and drainage arrangements indicated on Drawings and as required for leakproof construction.

C. Expansion Provisions: Fabricate sheet metal roofing to allow for expansion in running Work sufficient to prevent leakage, damage, and deterioration of the Work.
   1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
   2. Use lapped expansion joints only where indicated on Drawings.

D. Sealant Joints: Where movable, non-expansion type joints are required, form metal to provide for proper installation of elastomeric sealant according to SMACNA's "Architectural Sheet Metal Manual."

E. Sheet Metal Accessories: Custom fabricate flashings and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design dimensions, metal, and other characteristics of the item required. Obtain field measurements for accurate fit before shop fabrication.
   1. Form exposed sheet metal accessories without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and exposed edges folded back to form hems.
   2. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
   3. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for the intended use. Rivet joints where necessary for strength.
   4. Sealed Joints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant.
   5. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces of accessories exposed to view.
   6. Fabricate cleats and attachment devices of sizes recommended by SMACNA's "Architectural Sheet Metal Manual" for application, but not less than the metal's thickness is secured.

F. Do not use graphite pencils to mark metal surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking, that tops of fasteners are flush with the surface. That installation is within flatness tolerances required for finished roofing installation.

B. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

C. Examine roughing-in for components and systems penetrating sheet metal roofing to verify actual penetration locations relative to seam locations of sheet metal roofing before installation.

3.2 UNDERLAYMENT INSTALLATION

A. Synthetic Underlayment: Install synthetic underlayment, wrinkle-free, according to manufacturers' written instructions, using adhesive where possible to minimize the use of mechanical fasteners under the sheet metal.

1. Apply from eave to ridge.
2. Apply on roof not covered by self-adhering sheet underlayment.
3. Lap horizontal joints not less than 4 inches.
4. Lap end joints not less than 12 inches.

B. Self-Adhering High-Temperature Sheet Underlayment:

1. Install self-adhering high-temperature sheet underlayment, wrinkle-free.
2. Prime substrate if recommended by underlayment manufacturer.
3. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures.
4. Apply in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses.
5. Overlap side edges not less than 3-1/2 inches.
6. Roll laps and edges with a roller.
7. Cover underlayment within 14 days of installation.

8. Install self-adhering high-temperature underlayment at the following locations:
    a. Roof perimeter for a distance up from eaves of 24 inches beyond the interior wall line.
    b. Valleys, from lowest to highest point, for a distance on each side of 18 inches.
    c. Rake edges for a distance of 18 inches.
    d. Hips and ridges for a distance on each side of 12 inches.
    e. Roof-to-wall intersections for a distance of 18 inches from the wall

C. Install flashings to cover underlayment according to requirements in Section 07 62 00 "Sheet Metal Flashing and Trim."

3.3 INSTALLATION, GENERAL

A. Install sheet metal roofing to comply with details shown and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to installation characteristics required unless otherwise indicated on Drawings.

1. Install fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items required for a complete roofing system.
2. Install sheet metal roofing true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder welds sealant.
3. Anchor sheet metal roofing and other Work components securely in place, with provisions for thermal and structural movement.
4. Do not field cut sheet metal roofing by torch.
5. Provide metal closures at peaks rake edges eaves and each side of the ridge and hip caps.
6. Reference roofing details on sheet A1.03 for closure/flashing details. It is the intent for the roofing to be historical in character.
7. Flash and seal sheet metal roofing with closure strips at eaves, rakes, and perimeter of all openings. Fasten with self-tapping screws.
8. Locate and space fastenings in uniform vertical and horizontal alignment.
9. Pre-drill panels for fasteners.
10. Install ridge and hip caps as sheet metal roofing work proceeds. Reference roofing details on sheet A1.03 for closure/flashing details. It is the intent for the roofing to be historical in character.

11. Lap metal flashing over sheet metal roofing to direct moisture to run over and off roofing.
12. Do not use graphite pencils to mark metal surfaces.

B. Thermal Movement: Rigidly fasten metal roof panels to the structure at only one location for each panel.
   1. Allow the remainder of the panel to move freely for thermal expansion and contraction.
   2. Point of Fixity: Fasten each panel along a single common line of fixing located at the eave ridge center of panel length.
   3. Avoid attaching accessories through roof panels in a manner that inhibits thermal movement.

C. Fasteners: Use fastener sizes that penetrate substrate not less than the fastener manufacturer recommended to achieve maximum pull-out resistance.

D. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating, by applying self-adhering sheet underlayment to each contact surface, or by other permanent separation as recommended in SMACNA's "Architectural Sheet Metal Manual."
   1. Coat concealed side of uncoated-aluminum and stainless steel sheet metal roofing with bituminous coating where roofing contacts wood, ferrous metal, or cementitious construction.

E. Conceal fasteners and expansion provisions where possible in exposed Work and locate to minimize the possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

F. Fasciae:
   1. Align the bottom of sheet metal roofing and fasten with blind rivets, bolts, or self-tapping screws.
   2. Flash and seal sheet metal roofing with closure strips where fasciae meet soffits, along lower panel edges, and at the perimeter of all openings.

3.4 CUSTOM-FABRICATED SHEET METAL ROOFING INSTALLATION

A. Install sheet metal roofing system with lines and corners of exposed units true and accurate.
   1. Form exposed faces flat and free of buckles, excessive waves, and avoidable tool marks, considering metal temper and reflectivity.
   2. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
   3. Fold back sheet metal to form hem on the concealed side of exposed edges unless otherwise indicated.

B. Install cleats to hold sheet metal roofing panels in position.
   1. Attach each cleat with at least two fasteners to prevent rotation.
   2. Space cleats not more than 12 inches o.c.
   3. Bend tabs over fastener head.
   4. Provide expansion-type cleats for roof panels that exceed 30 feet in length.

C. Seal joints as required for watertight construction. For roofing with 3:12 slopes or less, use cleats at transverse seams.
   1. Use sealant-filled joints unless otherwise indicated.
      a. Embed hooked flanges of joint members not less than 1 inch into the sealant.
      b. Form joints to completely conceal sealant.
      c. When the ambient temperature at the time of installation is between 40 and 70 degrees F, set joint members for 50 percent movement each way.
      d. Adjust setting proportionately for installation at higher ambient temperatures.
      e. Do not install sealant-type joints at temperatures below 40 deg F.
   2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

D. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter.
   1. Pre-tin edges of sheets with solder to a width of 1-1/2 inches reduce pre-tinning where the pre-tinned surface would show in completed Work.
   2. Do not solder the aluminum sheet.
   3. Do not use torches for soldering.
   4. Heat surfaces to receive solder and flow solder into joint.

a. Fill joint completely.
b. Completely remove flux and spatter from exposed surfaces.

5. Stainless Steel Soldering:
   a. Tin edges of uncoated sheets, using solder for stainless steel and acid flux.
   b. Promptly remove acid flux residue from metal after tinning and soldering.
   c. Comply with the solder manufacturer's recommended methods for cleaning and neutralization.
6. Copper Soldering: Tin edges of uncoated sheets, using solder for copper.

E. Rivets: Rivet joints in uncoated aluminum where necessary for strength.

F. Flat-Seam Roofing:
1. Attach flat-seam metal panels to substrate with cleats, starting at the eave and working upward toward the ridge.
2. After panels are in place, the mallet seams tight and solder.
3. Attach roofing panels with cleats spaced not more than 24 inches o.c. Lock and solder panels to base flashing.
4. Attach edge flashing to face of roof edge with continuous cleat fastened to roof substrate at 12- inch on center spacing. Lock panels to edge flashing and solder.
5. Reference details A1.03 for more guidance on fabrication and quality control details.

G. Standing-Seam Roofing:
1. Attach standing-seam metal panels to substrate with double-fastened cleats spaced at 12 inches on center.
2. Install panels reaching from eave to ridge before moving to adjacent panels.
   a. Where transverse joints are required, stagger joints in adjacent panels not less than 48 inches.
3. Before panels are interlocked, apply a continuous bead of sealant to the top of the lower panel's flange.
4. Lock standing seams by folding over twice, so cleat and panel edges are completely engaged.
5. Lock each panel to the panel below with a soldered transverse seam.
6. Loose-lock panels at eave edges to continuous cleats and flanges at roof edge at gutters.
7. Leave seams upright. Fold over seams after locking at ridges and hips.

3.5 ACCESSORY INSTALLATION

A. Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion.
   1. Coordinate installation with flashings and other roofing components.
   2. Install components required for complete sheet metal roofing assembly, including trim, seam covers, flashings, sealants, gaskets, fillers, metal closures, closure strips, and similar items.
   3. Install accessories integral to sheet metal roofing specified in Section 07 62 00 "Sheet Metal Flashing and Trim" to comply with that Section's requirements.

B. Flashing and Trim: Comply with performance requirements and SMACNA's "Architectural Sheet Metal Manual."
   1. Provide concealed fasteners where possible, and install units true to line, levels, and slopes.
   2. Install Work with laps, joints, and seams that are permanently watertight and weather resistant.
   3. Install flashing and trim as required to seal against weather and to provide finished appearance, including, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers.
   4. Install a continuous strip of self-adhering underlayment at the edge of the continuous flashing overlapping self-adhering underlayment. Where "continuous seal strip" is indicated, refer to the installation methods in the SMACNA's "Architectural Sheet Metal Manual" and on Drawings.
   5. Install exposed flashing and trim without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
   6. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
   7. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.
      a. Space expansion joints at a maximum of 10 feet with no joints within 24 inches of corner or intersection.
      b. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, and filled with butyl sealant concealed within joints.

c. Use lapped expansion joints only where indicated on Drawings.

C. Pipe Flashing: Form flashing around pipe penetration and sheet metal roofing. Fasten and seal to sheet metal roofing as recommended in SMACNA's "Architectural Sheet Metal Manual."

3.6 CLEANING

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. On completion of sheet metal roofing installation, clean finished surfaces as recommended by sheet metal roofing manufacturer.

C. Clean and neutralize flux materials. Clean off excess solder.

D. Clean off excess sealants.

3.7 PROTECTION

A. Remove temporary protective coverings and removable films as sheet metal roofing is installed unless otherwise indicated in the manufacturer's written installation instructions.

B. Prohibit traffic of any kind on installed sheet metal roofing.

C. Maintain sheet metal roofing in clean condition during construction.

D. Replace sheet metal roofing components that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION

SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Formed roof-drainage sheet metal fabrications.
2. Formed low-slope roof sheet metal fabrications.

1.2 ACTION SUBMITTALS

A. Product Data: For each of the following

1. Elastomeric sealant.
2. Butyl sealant.

B. Shop Drawings: For sheet metal flashing and trim.

1. Include plans, elevations, sections, and attachment details.
2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled Work.
3. Include identification of material, thickness, weight, and finish for each item and location in Project.
4. Include details for forming, including profiles, shapes, seams, and dimensions.
5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
6. Include details of termination points and assemblies.
7. Include details of expansion joints and expansion-joint covers, including showing the direction of expansion and contraction from fixed points.
8. Include details of roof-penetration flashing.
9. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, flashings, and counter flashings.
10. Include details of special conditions.
11. Include details of connections to adjoining Work.

1.3 INFORMATIONAL SUBMITTALS

A. Qualifications Data: For fabricator.

B. Product Certificates: Each type of coping and roof edge flashing that is ANSI/SPRI/FM 4435/ES-1 tested and FM Approvals approved.

C. Product Test Reports: For each product, a test performed by a qualified testing agency.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

1. For copings and roof edge flashings that are ANSI/SPRI/FM 4435/ES-1 tested and, the shop shall be listed as able to fabricate required details as tested and approved.

B. Mockups: Build mockups to verify selections made under sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.

1. Build a mockup of the typical roof edge, including restored fascia, approximately 24 inches long, including supporting construction cleats, seams, attachments, gutters, underlayment, and accessories.

2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at the time of substantial completion.

1.6 WARRANTY

A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim, showing evidence of deterioration of factory-applied finishes within the specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.

b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.

c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, shall withstand wind loads, structural movement, thermally induced movement, and weather exposure without failure due to defective manufacture and fabrication installation or other construction defects. Completed sheet metal flashing and trim shall not rattle, leak, loosen, and remain watertight.

B. Sheet Metal Standard for Flashing and Trim: Comply with SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

C. Thermal Movements: Allow thermal movements from ambient and surface temperature changes to prevent buckling, the opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 SHEET METALS

A. Protect mechanical and other finishes on exposed surfaces from damage by applying removable, temporary protective film before shipping.

B. Copper Sheet: ASTM B370, cold-rolled copper sheet, H00, or H01 temper.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. Revere Copper Products, Inc.

C. Aluminum Sheet: ASTM B209, alloy as standard with the manufacturer for the finish required, with a temper as required to suit forming operations and performance required; with a smooth, flat surface.

1. Factory Prime Coating: Where painting after installation is required, pretreat metal with white or light-colored, factory-applied, baked-on epoxy primer coat; minimum dry film thickness of 0.2 mil.

2. Color: As indicated by manufacturer's designations As selected by Architect from manufacturer's full range.

3. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

D. Stainless Steel Sheet: ASTM A240/A240M, Type 304, dead-soft, fully annealed; with a smooth, flat surface.
   1. Finish: ASTM A480/A480M, No. 2D (dull, cold rolled).

E. Metallic-Coated Steel Sheet: Provide Tin-Plated (terne) 439 stainless steel sheet with a smooth, flat finish. Roofinox Tin Matte
   1. Surface: Smooth, flat.
   2. Color: As indicated by the manufacturer's designations, natural patina.

2.3 UNDERLAYMENT MATERIALS

A. Refer to Section 07 61 00 "Sheet Metal Roofing."

2.4 MISCELLANEOUS MATERIALS

A. Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items required for complete sheet metal flashing and trim installation and as recommended by the manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads recommended by the manufacturer of primary sheet metal or manufactured item.
   1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
      a. Exposed Fasteners: Heads matching the color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on the weather side of metal.
      b. Blind Fasteners: High-strength aluminum or stainless steel rivets suitable for the metal being fastened.
      c. Spikes and Ferrules: Same material as gutter, with a spike with ferrule matching internal gutter width.
   2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
   3. Fasteners for Stainless Steel Sheet: Series 300 stainless steel.
   4. Fasteners for Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel in accordance with ASTM A153/A153M or ASTM F2329.

C. Solder:
   1. For Stainless Steel: ASTM B32, 100 percent tin, with a maximum lead content of 0.2 percent, as recommended by sheet metal manufacturer.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, non-sag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.

E. Elastomeric Sealant: ASTM C920, elastomeric polyurethane polymer sealant; type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

F. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy-bodied for hooked-type expansion joints with limited movement.

G. Bituminous Coating: Cold-applied asphalt emulsion in accordance with ASTM D1187/D1187M.

2.5 FABRICATION, GENERAL

A. Custom fabricated sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard apply to design, dimensions, geometry, metal thickness, and other characteristics of the item required.

1. Fabricate sheet metal flashing and trim in a shop to the greatest extent possible.
2. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
3. Verify the shapes and dimensions of surfaces to be covered and obtain field measurements for accurate fit before shop fabrication.
4. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and exposed edges folded back to form hems.
5. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

B. Fabrication Tolerances:

1. Fabricate sheet metal flashing and trim capable of installing a tolerance of 1/4-inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and alignment of matching profiles.
2. Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified.

C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.
   1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
   2. Use lapped expansion joints only where indicated on Drawings.

D. Sealant Joints: Where movable, non-expansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.

E. Fabricate cleats and attachment devices from the same material as accessory being anchored or from compatible, non-corrosive metal.

F. Fabricate cleats and attachment devices of sizes are recommended by cited sheet metal standards for application, but not less than the thickness of the metal being secured.

G. Seams:
   1. Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
   2. Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for the intended use. Rivet joints where necessary for strength.
   3. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints where necessary for strength.

2.6 ROOF-DRAINAGE SHEET METAL FABRICATIONS

A. Half Round Hanging Gutters:
   1. Fabricate to cross-section required, complete with end pieces, outlet tubes, and other accessories as required.
   2. Fabricate in a minimum of 96-inch- long sections.
   3. Furnish flat-stock gutter brackets and flat-stock twisted gutter spacers and straps are fabricated from the same metal as gutters, of size recommended by the cited sheet metal standard with not less than twice the gutter thickness.
   4. Fabricate expansion joints, expansion joint covers, gutter bead reinforcing bars, and gutter accessories from the same metal as gutters. Shop fabricate interior and exterior corners.
   5. Accessories: Continuous, removable leaf screen with sheet metal frame and cloth screen valley baffles.

6. Gutters with Girth up to 15 Inches: Fabricate from the following materials:
    a. Galvanized Steel: 0.022-inch thick.

B. Downspouts: Fabricate round downspouts to dimensions indicated on Drawings, complete with mitered elbows. Furnish with metal hangers from the same material as downspouts and anchors. Shop fabricate elbows.
1. Hanger Style: Pipe bracket 4-inch stamped projecting mount.
2. Fabricate from the following materials:
    a. Galvanized Steel: 0.022-inch thick.

2.7 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Refer to Section 07 61 00 "Sheet Metal Roofing" for low-slope roof sheet metal fabrication, flat seam metal roof.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions with Installer present for compliance with requirements for installation tolerances, substrate, and other conditions affecting the performance of the Work.
1. Verify compliance with requirements for installation tolerances of substrates.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
3. Verify that air-or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF UNDERLAYMENT

A. Refer to Section 076100 "Sheet Metal Roofing"

3.3 INSTALLATION, GENERAL

A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.
1. Install fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items required to complete sheet metal flashing and trim system.
2. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of soldered sealant.

3. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.
4. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.
5. Install continuous cleats with fasteners spaced not more than 12 inches o.c.
6. Space individual cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
7. Install exposed sheet metal flashing and trim with limited oil-canning and free of buckling and tool marks.
8. Do not field cut sheet metal flashing and trim by torch.

B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with a bituminous coating. Other permanent separation to be used as recommended by sheet metal manufacturer or cited sheet metal standard.
1. Coat concealed side of uncoated-aluminum and stainless steel sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.
1. Space movement joints at a maximum of 10 feet with no joints within 24 inches of corner or intersection.
2. Form expansion joints of intermeshing hooked flanges, not less than 1-inch deep, filled with sealant concealed within joints.
3. Use lapped expansion joints only where indicated on Drawings.

D. Fasteners: Use fastener sizes that penetrate substrate not less than the fastener manufacturer recommended to achieve maximum pull-out resistance.

E. Conceal fasteners and expansion provisions where possible in exposed Work and locate to minimize the possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

F. Seal joints as required for watertight construction.
1. Use sealant-filled joints unless otherwise indicated.

a. Embed hooked flanges of joint members not less than 1 inch into the sealant.
b. Form joints to completely conceal sealant.
c. When the ambient temperature at the time of installation is between 40 and 70 degrees F, set joint members for 50 percent movement each way.
d. Adjust setting proportionately for installation at higher ambient temperatures.
1) Do not install sealant-type joints at temperatures below 40 deg F.

2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter.
1. Pre-tin edges of sheets with solder to a width of 1-1/2 inches. Reduce pre-tinning where the pre-tinned surface would show in completed Work.
2. Do not use torches for soldering.
3. Heat surfaces to receive solder and flow solder into joint.
a. Fill joint completely.
b. Completely remove flux and spatter from exposed surfaces.
4. Stainless Steel Soldering:
a. Tin edges of uncoated sheets, using solder for stainless steel and acid flux.
b. Promptly remove acid-flux residue from metal after tinning and soldering.
c. Comply with the solder manufacturer's recommended methods for cleaning and neutralization.

H. Rivets: Rivet joints in uncoated aluminum-zinc where necessary for strength.

3.4 INSTALLATION OF ROOF-DRAINAGE SYSTEM

A. Install sheet metal roof-drainage items to produce a complete roof-drainage system according to the cited sheet metal standard unless otherwise indicated. Coordinate installation of roof perimeter flashing with the installation of the roof drainage system.

B. Hanging Gutters:
1. Join sections with riveted and soldered joints.
2. Provide for thermal expansion.
3. Attach gutters at eave or fascia to firmly anchor them in position.
4. Provide end closures and seal watertight with sealant.
5. Slope to downspouts.

6. Install gutter with expansion joints at locations indicated on Drawings but not exceeding 50 feet apart. Install expansion-joint caps.
7. Install continuous gutter screens on gutters with non-corrosive fasteners, hinged to swing open for cleaning gutters.

C. Downspouts:
1. Join sections with 1-1/2-inch telescoping joints.
2. Provide hangers with fasteners designed to hold downspouts securely to walls.
3. Locate hangers at top and bottom and approximately 60 inches on center.
4. Provide elbows at the base of the downspout to direct water away from the building.
5. Drain downspouts to new concrete splash blocks.

D. Expansion-Joint Covers: Install expansion-joint covers at locations and of configuration indicated on Drawings. Lap joints minimum of 4 inches in the direction of water flow.

3.5 INSTALLATION OF ROOF FLASHINGS

A. Install sheet metal flashing and trim to comply with performance requirements and cited sheet metal standards.
1. Provide concealed fasteners where possible, and set units true to line, levels, and slopes.
2. Install Work with laps, joints, and seams that are permanently watertight and weather resistant.

B. Roof Edge Flashing:
1. Install roof edge flashings in accordance with ANSI/SPRI/FM 4435/ES-1.
2. Anchor to resist uplift and outward forces in accordance with recommendations in cited sheet metal standard unless otherwise indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate at staggered 3-inch centers.

C. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending a minimum of 4-inches over the base flashing. Install stainless steel draw band and tighten.

D. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with the installation of roofing and other items penetrating the roof. Seal with silicone pipe boot (butyl sealant) and stainless steel draw band to pipes that penetrate the roof.

3.6 INSTALLATION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and alignment of matching profiles.

3.7 CLEANING

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder.

C. Clean off excess sealants.

3.8 PROTECTION

A. Remove temporary protective coverings and removable films as sheet metal flashing and trim are installed unless otherwise indicated in the manufacturer's written installation instructions.

B. Replace sheet metal flashing and trim that have been damaged or have deteriorated beyond successful repair by finishing touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION

SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Mildew-resistant joint sealants.
4. Latex joint sealants.

1.2 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Samples: For each kind and color of joint sealant required.

C. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.3 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Preconstruction laboratory test reports.

C. Preconstruction field-adhesion-test reports.

D. Field-adhesion-test reports.

E. Sample warranties.

1.4 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

B. Source Limitation:

1. Obtain each kind of joint sealant through one source from a single manufacturer.

1.5 WARRANTY

A. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within the specified warranty period.

1. Warranty Period: Five years from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Products: To establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other manufacturers, a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation. Subject to compliance with requirements, provide either the named products or equal products.

2.2 JOINT SEALANTS, GENERAL

A. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

1. It is the project's goal for the joint sealants to not be visibly intrusive to the historic structure. The colors should match as closely as possible to the adjacent surfaces. Provide the Architect with a color range for final color selection.

2.3 SILICONE JOINT SEALANTS

A. Silicone, S, NS, 100/50, NT: Single-component, non-sag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Adfast.
    b. GE Construction Sealants; Momentive Performance Materials Inc.
    c. Sika Corporation; Joint Sealants.

B. Silicone, S, NS, 50, NT: Single-component, non-sag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Adfast.
    b. GE Construction Sealants; Momentive Performance Materials Inc.
    c. Sika Corporation; Joint Sealants.
    d. The Dow Chemical Company.

2.4 URETHANE JOINT SEALANTS

A. Urethane, S, NS, 100/50, T, NT: Single-component, non-sag, plus 100 percent and minus 50 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C 920, Type S, Grade NS, Class 100/50, Uses T and NT.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. Sika Corporation; Joint Sealants.

2.5 MILDEW-RESISTANT JOINT SEALANTS

A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with a fungicide to prevent mold and mildew growth.

B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, non-sag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Adfast.

b. GE Construction Sealants; Momentive Performance Materials Inc.

c. The Dow Chemical Company.

d. Tremco Incorporated.

2.6 JOINT-SEALANT BACKING

A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) Type O (open-cell material) Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by the joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following or equal:

a. Adfast.

b. BASF Corporation.

c. Construction Foam Products; a division of Nomaco, Inc.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.7 MISCELLANEOUS MATERIALS

A. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
   1. Remove laitance and form-release agents from concrete.
   2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion.

B. Joint Priming: Prime joint substrates recommended by the joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces.

3.2 INSTALLATION OF JOINT SEALANTS

A. General: Comply with ASTM C 1193 and joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.

B. Install sealant backings of the kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
   1. Place sealants so they directly contact and thoroughly wet joint substrates.
   2. Completely fill recesses in each joint configuration.
   3. Produce uniform, cross-sectional shapes, and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated. Use tooling agents approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

1. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

3.3 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning material approved in writing by manufacturers of joint sealants and products in which joints occur.

3.4 PROTECTION

A. Protect joint sealants during and after the curing period from contact with contaminating substances and damage resulting from construction operations or other causes, so sealants are without deterioration or damage at the time of substantial completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deterioration joint sealants immediately, so installations with repaired areas are indistinguishable from original Work.

3.5 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces <JS-#>.

1. Joint Locations:

a. Perimeter joints at wood frames of doors.

b. Perimeter joints at wood frames of windows.

c. Other joints as indicated on Drawings.

END OF SECTION

SECTION 08 14 33 - STILE AND RAIL WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Exterior stile and rail wood doors.
2. Factory priming.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product, including the following:

1. Details of construction and glazing.
2. Door frame construction.
3. Factory-machining criteria.
4. Factory- priming specifications.

B. Shop Drawings: Indicate location, size, and the hand of each door; elevation of each type of door; construction details not covered in Product Data, including those for stiles, rails, panels, and moldings (sticking); and other pertinent data, including the following:

1. Door schedule indicating door and frame location, type, size, fire protection rating, and swing.
2. Door elevations, dimensions, and location of hardware, lite locations, and glazing thickness.
3. Details of the frame for each frame type, including dimensions and profile.
4. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
5. Clearances and undercuts.
6. Requirements for veneer matching.
7. Apply AWI Quality Certification Program label to Shop Drawings.

1.3 QUALITY ASSURANCE

A. Manufacturer's Certification: Licensed participant in AWI's Quality Certification Program

B. Egress Door Inspector Qualifications: Inspector for field quality control inspections of egress door assemblies shall meet the qualifications outlined in NFPA 101, section 7.2.1.15.4, and the following:

1. Door and Hardware Institute Fire and Egress Door Assembly Inspector (FDAI) certification.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

2.2 MATERIALS

A. Use only materials that comply with referenced standards and other requirements specified.

1. Assemble exterior doors, including components, with wet-use adhesives complying with ASTM D 5572 for finger joints and with ASTM D 5751 for joints other than finger joints.
2. Assemble interior doors, including components, with either dry-use or wet-use adhesives complying with ASTM D 5572 for finger joints and with ASTM D 5751 for joints other than finger joints.

B. Panel Products: Any of the following unless otherwise indicated:

1. Particleboard: ANSI A208.1, Grade M-2.
2. Medium-density fiberboard (MDF) complying with ANSI A208.2, Grade 130.
3. Hardboard complying with ANSI A135.4.
4. Veneer-core plywood.

C. Safety Glass: Provide products complying with testing requirements in 16 CFR 1201 for Category II materials, unless those of Category I are expressly indicated and permitted.

2.3 EXTERIOR STILE AND RAIL WOOD DOORS

A. Exterior Stile and Rail Wood Doors Type SRD-<#>: Exterior stock doors complying with the AWI, AWMAC, and WI's Architectural Woodwork Standards, and with other requirements specified.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   a. ETO Doors Corp.
   b. Simpson Door Company. Basis of Design
2. Architectural Woodwork Standards Grade: Custom
3. Panel Designs: As indicated on Drawings.
   a. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval.
   b. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

4. Finish: Opaque.
5. Door Construction for Opaque Finish:
    a. Stile and Rail Construction: Clear softwood; can be edge-glued for width and finger jointed.
    b. Raised-Panel Construction: Clear softwood lumber; edge-glued for width.
6. Stile and Rail Widths: Manufacturer's standard, but not less than the following:
    a. Stiles, Top and Intermediate Rails: 4 inches.
    b. Bottom Rails: 9 inches.
7. Raised-Panel Thickness: As indicated on Drawings Manufacturer's standard, but not less than 1-1/8 inches.
8. Molding Profile (Sticking): As selected by Architect from manufacturer's full range.
9. Glass: Uncoated, clear, insulating-glass units made from two lines of 3.0-mm-thick, fully tempered glass with 1/4-inch interspace.
10. Mark, label, or otherwise identify stile and rail wood doors as complying with WDMA IS 6A and grade specified.

2.4 FACTORY PRIMING

A. Doors for Opaque Finish: Shop prime faces, all four edges, edges of cutouts, and mortises with one coat of wood primer.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hardware: For installation, see Section 08 71 00 "Door Hardware."
B. Install doors and frames to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
    1. Install smoke- and draft-control doors, according to NFPA 105.
C. Job-Fitted Doors:
    1. Align and fit doors in frames with uniform clearances and bevels, as indicated below.
        a. Do not trim stiles and rails in excess of limits set by the manufacturer or permitted for fire-rated doors.
    2. Machine doors for hardware.
    3. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.

4. Clearances:
    a. Provide 1/8 inch at heads, jambs, and between pairs of doors.
    b. Provide 1/8 inch from the bottom of the door to the top of decorative floor finish or covering unless otherwise indicated on Drawings.
    c. The threshold is shown on Drawings or scheduled, providing 1/4 inch from the bottom of the door to the top of the threshold unless otherwise indicated.
5. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.

D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

E. Factory- Finished Doors: Restore finish before installation if fitting or machining is required at the Project site.

3.2 FIELD QUALITY CONTROL

A. Inspections:
1. Provide inspection of installed Work through AWI's Quality Certification Program, certifying that woodwork, including installation, complies with the Architectural Woodwork Standards requirements for the specified grade.

B. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.

C. Reinspect repaired or replaced installations to determine if replaced or repaired door installations comply with specified requirements.

3.3 ADJUSTING

A. Operation: Rehang or replace doors that do not swing or operate freely.

B. Finished Doors: Replace doors that are damaged or do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION

SECTION 08 71 00 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Mechanical door hardware for the following:

a. Swinging doors.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Door hardware schedule.

C. Keying schedule.

1.3 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace door hardware components that fail in materials or workmanship within the specified warranty period.

1. Warranty Period: Three years from the date of Substantial Completion unless otherwise indicated below:

a. Manual Closers: 10 years from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Means of Egress Doors: Latches do not require more than 15 lb-force to release the latch. Locks do not require the use of a key, tool, or special knowledge for operation.

B. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the USDOJ's "2010 ADA Standards for Accessible Design" and Texas Accessibility Standards.

2.2 HINGES

A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow metal frames.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Allegion plc.

2.3 MECHANICAL LOCKS AND LATCHES

A. Lock Functions: As indicated in the door hardware schedule. All keying shall be coordinated with the Owner. The finish should match the lever and hinges.

B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:

1. Bored Locks: Minimum 1/2-inch latch bolt throw.
2. Mortise Locks: Minimum 3/4-inch latch bolt throw.
3. Deadbolts: Minimum 1-inch bolt throw.

C. Lock Backset: 2-3/4 inches unless otherwise indicated.

D. Lock Trim:

1. Description: as is hereinafter listed in the hardware schedule.
2. Levers: Cast.
    a. Schlage, Asti(2), Aged Bronze(US11).
    b. Confirm the lever model closely matches the existing front door lever
3. Escutcheons (Roses): Cast.
4. Dummy Trim: Match lever lock trim and escutcheons.

E. Strikes: Provide manufacturer's standard strike for each lock bolt or latch bolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match the lock or latch.

1. Flat-Lip Strikes: For locks with three-piece antifriction latch bolts, as recommended by the manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Manufacturer's special strike box fabricated for aluminum framing.
4. Rabbet Front and Strike: Provide locksets for rabbeted meeting stiles.

F. Mortise Locks: BHMA A156.13; Operational Grade 1; stamped steel case with steel or brass parts; Series 1000. Unless requested by the Owner, confirm lock grade with Owner before installation.

1. Manufacturers: Subject to compliance with requirements, provide products by the following :
    a. Schlage.

2.4 SURFACE CLOSERS

A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written instructions for the size of door closers depending on the size of the door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

1. Manufacturers: Subject to compliance with requirements, undefined:

a. Schlage.

2.5 THRESHOLDS

A. Thresholds: BHMA A156.21; fabricated to the full width of an opening indicated.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Zero International; an Allegion brand.

2.6 FINISHES

A. Provide finishes complying with BHMA A156.18 as indicated in the door hardware schedule.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.

1. Wood Doors: DHI's "Recommended Locations for Architectural Hardware for Wood Stile and Rail Doors."

B. Install each door hardware item to comply with the manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing Work. Do not install surface-mounted items until finishes have been completed on substrates involved.

C. Hinges: Install types and in quantities indicated in the door hardware schedule, but not fewer than the number recommended by the manufacturer for application indicated or one hinge for every 30 inches of the door height, whichever is more stringent, unless other equivalent means of support for the door, such as spring hinges or pivots, are provided.

D. Intermediate Offset Pivots: Where offset pivots are indicated, provide intermediate offset pivots in quantities indicated in the door hardware schedule, but not fewer than one intermediate offset pivot per door. Provide one additional intermediate offset pivot for every 30 inches of door height greater than 90 inches.

E. Thresholds: Set thresholds for exterior doors and other doors indicated in a full bed of sealant complying with requirements specified in Section 07 92 00 "Joint Sealants."

F. Meeting Stile Gasketing: Fasten to meeting stiles, forming a seal when doors are closed.

G. Door Bottoms: Apply to the bottom of the door, forming a seal with the threshold when the door is closed.

3.2 ADJUSTING

A. Adjust and check each operating item of door hardware and each door to ensure every unit's proper operation or function. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for the final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.3 DOOR HARDWARE SCHEDULE

A. Hardware schedule to be noted in drawings.

END OF SECTION

SECTION 09 03 91 - HISTORIC TREATMENT OF PLAIN PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the historic treatment of plain painting as follows:

1. Removing existing paint.
2. Repairing substrates.
3. Plain painting of historic surfaces.

B. Related Requirements:

1. Section 01 35 91 "Historic Treatment Procedures" for general historic treatment requirements.
2. Section 06 03 12 "Historic Wood Repair" for historic wood repair siding and trim prior to painting

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

H. Modern Paint Materials: Paint materials not designed to match historic paint formulations, but that may be required to match historic paint colors.

I. Plain Painting: For historic treatment, this means painting that requires attention to historic treatment requirements but no special, decorative, or artistic painting skill.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each type of paint system and each color and gloss.

1. For each painted color being matched to a standardized color-coding system, include the color chips from the color-coding-system company with Samples.

2. Label each Sample for location and application.

C. Product List: Printout of current MPI's "MPI Approved Products List" for each MPI-product category specified in paint systems, with the proposed product highlighted.

1.4 INFORMATIONAL SUBMITTALS

A. Color Matching Certificate: For computer color matching of historic colors.

1.5 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic painting specialist with expertise in matching and touching up existing painting. Experience only in new painting work is insufficient experience for historic treatment work.

B. Color Matching: Custom computer-match paint colors to colors indicated in historic painting schedule(s) at the end of Part 3.

C. Mockups: Prepare mockups of historic treatment processes for each type of coating system, and substrate indicated. Each color and finish is required to demonstrate aesthetic effects and set quality standards for materials and execution. Contractor to duplicate the appearance of approved Sample submittals.

1. Surface-preparation mockups using applicable specified methods of cleaning and other surface preparation.

2. Coating mockups to represent surfaces and conditions for the application of each type of coating system.

PART 2 - PRODUCTS

2.1 PREPARATORY CLEANING MATERIALS

A. Water: Potable.

B. Hot Water: Water heated to a temperature of 140 to 160 deg F.

C. Detergent Solution: Solution prepared by mixing 2 cups of tetrasodium pyrophosphate (TSPP), 1/2 cup of laundry detergent that contains no ammonia, 5 quarts of 5 percent sodium hypochlorite bleach, and 15 quarts of warm water for every 5 gallons of solution required.

D. Mildewcide: Commercial proprietary mildewcide or a job-mixed solution prepared by mixing 1/3 cup of household detergent that contains no ammonia, 1 quart of 5 percent sodium hypochlorite bleach, and 3 quarts of warm water.

E. Abrasives for Ferrous Metal Cleaning: Aluminum oxide paper, emery paper, fine steel wool, steel scrapers, and steel-wire brushes of various sizes.

F. Rust Remover: Manufacturer's standard phosphoric acid-based gel formulation, also called "naval jelly," removes corrosion from iron and steel.

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Colors: As indicated with each paint system in historic painting schedule(s) at the end of Part 3 As selected by Architect from a full range of industry colors.

2.3 MODERN PAINT MATERIALS, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Transition Coat: Paint manufacturer's recommended coating for use where an existing residual coating is incompatible with the paint system.

2.4 MODERN PAINT MATERIAL MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Benjamin Moore & Co.

2.5 MODERN PAINT MATERIALS

A. Primers and Sealers:

1. Primer Sealer, Latex, Interior: MPI #50.

a. Basis-of-Design Product: Fresh Start Premium Interior Primers.

B. Metal Primers:

1. Primer, Metal, Surface Tolerant: MPI #23.

a. Basis-of-Design Product: Benjamin Moore.

C. Wood Primers:

1. Primer, Latex for Exterior Wood: MPI #6.

a. Basis-of-Design Product: BM, Ultra Spec EXT latex Primer (N558).

D. Water-Based Paints:

1. Latex, Exterior Satin (Gloss Levels 4): MPI #15.

a. Basis-of-Design Product: BM, Ultra Spec EXT Satin Finish N448.

2. Latex, Exterior Semigloss (Gloss Level 5): MPI #11.

a. Basis-of-Design Product: BM, AURA, waterborne exterior paint semi-gloss finish 632.

2.6 PATCHING MATERIALS

A. Wood-Patching Compound: Two-part, epoxy-resin, wood-patching compound; knife-grade formulation recommended in writing by the manufacturer for type of wood repair indicated, tooling time required for the detailed Work, and site conditions. The compound shall be designed for filling voids in damaged wood materials that have deteriorated due to weathering and decay. The compound shall be capable of filling deep holes and spreading to feather the edge.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Abatron, Inc.

b. ConServ Epoxy LLC.

B. Metal Patching Compound: Two-part, polyester-resin, metal patching compound; knife-grade formulation recommended in writing by the manufacturer for type of metal repair indicated, tooling time required for the detail of Work, and site conditions. The compound shall be produced for filling metal that has deteriorated due to corrosion. Filler shall be capable of filling deep holes and spreading to feather the edge.

C. Cementitious Patching Compounds: Cementitious patching compounds and repair materials specifically manufactured for filling cementitious substrates and sanding or tooling prior to repainting; formulation, as recommended in writing by manufacturer for type of cementitious substrate, indicated, exposure to weather and traffic, the detail of Work, and site conditions.

D. Gypsum-Plaster Patching Compound: Finish coat plaster and bonding compound according to ASTM C 842 and manufacturer's written instructions.

PART 3 - EXECUTION

3.1 HISTORIC TREATMENT OF PAINTING, GENERAL

A. Execution of the Work: In treating historic items, disturb them as minimally as possible and as follows:

1. Remove failed coatings and corrosion and repaint.
2. Verify that substrate surface conditions are suitable for painting.
3. Allow other trades to repair items in place and retain as much original material as possible before repainting.
4. Install temporary protective measures to protect historic painted surfaces that shall be treated later.

B. Mechanical Abrasion: Where mechanical abrasion is needed for the Work, use only the gentlest mechanical methods, such as scraping and lightly hand sanding, that will not abrade softer substrates, reducing the clarity of detail. Do not use abrasive methods such as rotary sanding, rotary wire brushing, or power tools except as indicated as part of the historic treatment program and as approved by the Architect.

C. Heat Processes: Do not use torches, heat guns, or heat plates.

3.2 EXAMINATION

A. Examine substrates and conditions, with historic treatment specialist present, for compliance with requirements for maximum moisture content and other conditions affecting painting work performance. Comply with the paint manufacturer's written instructions for inspection.

B. Maximum Moisture Content of Substrates: Do not begin the application of coatings unless the moisture content of the exposed surface is below the maximum value recommended in writing by the paint manufacturer. The maximum moisture content shall not be greater than the following maximum values when measured with an electronic moisture meter appropriate to the substrate material:

1. Wood: 15 percent.

C. Alkalinity: Do not begin applying coatings unless surface alkalinity is within the range recommended in writing by the paint manufacturer. Conduct alkali testing with litmus paper on exposed plaster, cementitious, and masonry surfaces.

3.3 PREPARATORY CLEANING

A. General: Use only the gentlest, appropriate method necessary to clean surfaces in preparation for painting. Clean all surfaces, corners, contours, and interstices.

B. Detergent Cleaning: Wash surfaces by hand using clean rags, sponges, and bristle brushes. Scrub the surface with a detergent solution and bristle brush until the soil is thoroughly dislodged and removed by rinsing. Use small brushes to remove soil from joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that surface remains wet. Rinse with water applied by clean rags or sponges.

C. Solvent Cleaning: Use solvent cleaning to remove oil, grease, smoke, tar, and asphalt from painted or unpainted surfaces before other preparation work. Wipe surfaces with solvent using clean rags and sponges. If necessary, spot-solvent cleaning may be employed just prior to the commencement of paint application, provided enough time for complete evaporation. Use clean solvent and clean rags for the final wash to ensure that all foreign materials have been removed. Do not use solvents, including primer thinner and turpentine, that leave a residue.

D. Mildew: Clean off existing mildew, algae, moss, plant material, loose paint, grease, dirt, and other debris by scrubbing with bristle brush or sponge and detergent solution. Scrub mildewed areas with mildewcide. Rinse with water applied by clean rags or sponges.

E. Mechanical Rust Removal:

1. Remove rust with approved abrasives for ferrous-metal cleaning. Clean to bright metal.
2. Wipe off residue with mineral spirits and either steel wool or soft rags.
3. Dry immediately with clean, soft cloths. Follow the direction of the grain in metal.
4. Prime immediately to prevent rust. Do not touch the cleaned metal surface until primed.

3.4 PAINT REMOVAL

A. General: Remove paint where indicated. Where cleaning methods have been attempted, and further removal of the paint is required because of incompatible or unsatisfactory surfaces for repainting, remove paint to the extent required by conditions.

1. Brushes: Use brushes that are resistant to chemicals being used.
    a. Metal Substrates: If using wire brushes on metal, use the same metal composition as the metal being treated.
    b. Wood Substrates: Do not use wire brushes.
2. Spray Equipment: Use spray equipment that provides controlled application at volume and pressure indicated, measured at the nozzle. Adjust pressure and volume to ensure those spray methods do not damage surfaces.
    a. Equip units with pressure gages.
    b. Unless otherwise indicated, hold spray nozzle at least 6 inches from surface and apply the material in horizontal, back-and-forth sweeping motion, overlapping previous strokes to produce uniform coverage.
    c. For chemical spray application, use a low-pressure tank or chemical pump suitable for chemical indicated, equipped with a nozzle having a cone-shaped spray.
    d. For water-spray application, use a fan-shaped spray tip that disperses water at an angle of 25 to 50 degrees.
    e. For heated water-spray application, use equipment capable of maintaining the temperature between 140 and 160 degrees F at flow rates indicated.

B. Paint Removal with Hand Tools: Remove paint manually using hand-held scrapers, wire brushes, sandpaper, and metallic wool as appropriate for the substrate material. Do not use other methods except as part of the historic treatment program and as approved by Architect.

3.5 SUBSTRATE REPAIR

A. General: Repair substrate surface defects that are inconsistent with the surface appearance of adjacent materials and finishes.

B. Wood Substrate:

1. Reference Section 06 03 12 "Historic Wood Repair" for guidance on wood restoration

2. Repair wood defects, including dents and gouges more than 1/4 inch in size and all holes and cracks by filling with wood-patching compound and sanding smooth. Reset or remove protruding fasteners.
3. Where existing paint is allowed to remain, Contractor to sand irregular buildup of paint runs and sags to achieve a uniformly smooth surface.

3.6 PAINT APPLICATION, GENERAL

A. Prepare surfaces to be painted according to the Surface-Preparation Schedule and with manufacturer's written instructions for each substrate condition.
B. Apply a transition coat over incompatible existing coatings.
C. Metal Substrate: Stripe paint corners, crevices, bolts, welds, and sharp edges before applying the full coat. Apply two coats to surfaces that are inaccessible after completion of the Work. Tint stripe coat different than the primary coating and apply with a brush.
D. Blending Plain Painted Surfaces: When painting new substrates patched into existing surfaces or touching up missing or damaged finishes, apply a coating system specified for the specific substrate. Apply final finish coat over entire surface from edge to edge and corner to corner.

3.7 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage paint-remover manufacturer's factory-authorized service representative for consultation and Project-site inspection, and provide on-site assistance when requested by Architect.

3.8 CLEANING AND PROTECTION

A. At the end of each workday, remove rubbish, empty cans, rags, and other discarded materials from the Project site.
B. Protect Work of other trades against damage from paint application. Contractor to correct damage to Work of other trades by cleaning, repairing, replacing, refinishing, as approved by Architect, and leaving in an undamaged condition.
C. After construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.9 SURFACE-PREPARATION SCHEDULE

A. General: Before painting, prepare surfaces indicated on Drawings for painting according to applicable requirements specified in this schedule.
1. Examine surfaces to evaluate each surface condition according to the paragraphs below.

2. The existing degree of soiling prevents examination, pre-clean surface, and allows it to dry before making an evaluation.
3. Repair substrate defects according to "Substrate Repair" Article.

B. Surface Preparation for MPI DSD 1 Degree of Surface Degradation:
1. Surface Condition: Paint film cracked or broken but adhered.
2. Paint Removal: Scrape by hand-tool cleaning methods to remove loose paint until only tightly adhered paint remains.
3. Preparation for Painting: Wash surface by detergent cleaning; use other cleaning methods for small areas of the bare substrate if required. Roughen, de-gloss, and sand the cleaned surfaces to ensure paint adhesion and a smooth finish according to the paint manufacturer's written instructions.

C. Surface Preparation for MPI DSD 2 Degree of Surface Degradation:
1. Surface Condition: Paint film loose, flaking, or peeling.
2. Paint Removal: Remove loose, flaking, or peeling paint film by hand-tool or chemical paint-removal methods.
3. Preparation for Painting: Wash surface by detergent cleaning; use solvent cleaning where needed. Use other cleaning methods for small areas of the bare substrate if required. Sand surfaces to smooth remaining paint film edges. Prepare bare cleaned surface to be painted according to paint manufacturer's written instructions for substrate construction materials.

D. Surface Preparation for MPI DSD 3 Degree of Surface Degradation:
1. Surface Condition: Paint film severely deteriorated.
2. Paint Removal: Completely remove paint film by hand-tool or chemical paint-removal methods. Remove rust.
3. Preparation for Painting: Prepare bare, cleaned surface according to the paint manufacturer's written instructions for substrate construction materials.

E. Surface Preparation for MPI DSD 4 Degree of Surface Degradation:
1. Surface Condition: Missing material, small holes, and openings, and deteriorated or corroded substrate.
2. Substrate Preparation: Repair, replace, and treat substrate according to "Substrate Repair" Article and requirements in other Specification Sections.

3. Preparation for Painting: Sand substrate surfaces to smooth remaining paint film edges and prepare according to the paint manufacturer's written instructions for substrate construction materials. Remove rust.
4. Painting: Paint as required for MPI DSD 2 degree of surface degradation.

3.10 EXTERIOR HISTORIC PAINTING SCHEDULE

A. Wood Columns Beams Ceilings and TrimNew Railing, Fascia Boards, Water Table:
   1. Latex System: MPI REX 6.2A system over a transition coat.
      a. Prime Coat: For MPI DSD 3 degree of surface degradation, fully prime coat with Primer, Latex for Exterior Wood, MPI #6.
      b. Intermediate Coat: Latex, exterior, matching topcoat.
      c. Topcoat: Latex, exterior semi-gloss (Gloss Level 5), MPI #11.
      d. Color: Match colors indicated on Drawings.

B. Wood Siding :
   1. Latex System: MPI REX 6.6A system over a transition coat.
      a. Prime Coat: For MPI DSD 3 degree of surface degradation, fully prime coat with Primer, Latex for Exterior Wood, MPI #6.
      b. Intermediate Coat: Latex, exterior, matching topcoat.
      c. Topcoat: Latex, exterior, Satin (Gloss Levels 4), MPI #15.
      d. Color: Match colors indicated on Drawings.

END OF SECTION

31 10 00 – SITE CLEARING AND DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This Section includes the following:
   1. Removing trees and other vegetation.
   2. Clearing and grubbing.
   3. Topsoil stripping.
   4. Removing above-grade site improvements.

1.02 DEFINITIONS

A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; fertile, capable of growing healthy horticultural crops or grasses, reasonably free of subsoil, clay lumps, gravel, and other objects more than 1 inch in diameter; and free of weeds, roots, and other deleterious materials.

1.03 MATERIALS OWNERSHIP

A. Except for materials indicated to be stockpiled or to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from the site.

1.04 QUALITY ASSURANCE

A. Pre-Installation Conference: Conduct conference at Project site.

1.05 PROJECT 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 Owner and authorities having jurisdiction.
   2. Provide alternate routes around closed or obstructed traffic ways if required by authorities
B. Salvageable Improvements: If Owner indicates items to be salvaged, carefully remove items and store on Owner's premises where indicated.
C. Notify utility locator service for area where Project is located before site clearing.

PART 2 - EXECUTION

2.01 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Protect existing site improvements to remain from damage during construction.

C. Restore damaged improvements to their original condition, as acceptable to Owner.

2.02 UTILITIES

A. Owner will arrange for disconnecting and sealing indicated utilities (except electrical) that serve existing structures before site clearing when requested by Contractor.

1. Verify that utilities have been disconnected and capped before proceeding with site clearing.
2. Arrange to shut off indicated utilities with utility companies.

B. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted and then only after arranging to provide temporary utility services according to requirements indicated:

1. Contact Austin Energy and schedule disconnection of existing electrical service with Electrical Distribution Dispatch Office 512-505-7562, at least two (2) weeks prior to starting any work on the exterior of the building.
2. Do not proceed with utility interruptions without Austin Energy and Owner approval.
3. Once electrical service equipment, conduit, and conductors has been reinstalled, branch circuits have been reconnected, and restoration work has been completed on the exterior of the building, contact Austin Energy and schedule reconnection of electrical service.

C. PRIOR TO REMOVAL OF ELECTRICAL SERVICE AND DISCONNECTION OF BRANCH CIRCUITS, CONTRACTOR SHALL TRACE OUT AND RECORD EXISTING BRANCH CIRCUITS AND PROVIDE REPORT TO ARCHITECT/OWNER.

2.04 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots.

B. Completely remove stumps, roots, obstructions, and debris extending to a depth of 18 inches below exposed subgrade.

C. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.

D. Place fill material in horizontal layers not exceeding 8-inch loose depth, and compact each layer to a density equal to adjacent original ground.

2.05 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.

   1. Strip surface soil of unsuitable topsoil, including trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.

   1. Limit height of topsoil stockpiles to 72 inches.
   2. Stockpile surplus topsoil and allow for respreading deeper topsoil.

D. Topsoil work, such as stripping, stockpiling and similar topsoil work shall not, under any circumstance, be carried out when soil is set so that tilth of soil will be destroyed.

E. Strip topsoil in areas of proposed embankment or fill areas prior to earthwork operation.

F. Test the soil for chemicals, pesticides, and fertilizers if topsoil is to be removed from lands formerly utilized as farmland, to verify suitability for use as topsoil in the cemetery where new lawn areas are to be established.

2.06 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Sawcut faces vertically.

2.07 DISPOSAL

C. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off site.

END OF SECTION

32 92 00 – LAWNS AND TREE PROTECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This Section includes the following:
   1. Soil Preparation
   2. Sodding.
   3. Tree Protection

1.02 DEFINITIONS

A. Finish Grade: Elevation of finished surface of planting soil.
B. Existing Topsoil: stockpiled existing topsoil.
C. Imported Topsoil: Soil produced off-site by blending soils with organic soil amendments.
D. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.
E. Tree and Plant Protection Area: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and defined by a circle centered on the trunk with each tree with a radius equal to the dripline unless otherwise indicated by the owner's representative.

1.03 SUBMITTALS

A. Submit the following material samples in 8-ounce plastic bags to the Owner's Designated Representative for approval prior to construction:
   1. Imported topsoil.
   2. Fertilizers.
   3. Sod
   4. Mulch

B. Certificates of Conformance or Compliance: Before delivery, provide notarized certificates attesting that the following materials meet the requirements specified to the Owner's Designated Representative for approval:
   1. Fertilizers.
   2. Sod.
   3. Manufacturer's Literature and Data:
   4. Pre-emergent herbicides
   5. Soil laboratory testing results and any soil amendment recommendations.
   6. List of sod suppliers.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful lawn establishment. Installer to maintain an experienced full-time supervisor on site when planting is in progress.
B. Soil-Testing Laboratory Qualifications: An independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated.

1.05 WARRANTY

A. Warrant lawns and grasses and workmanship for the warranty period indicated, against defects, poor health, unsatisfactory growth, and death, except for defects resulting from lack of adequate maintenance, neglect, or abuse by Owner's maintenance personnel or incidents that are beyond Contractor's control.
   1. Warranty period: One (1) year from Date of Final Acceptance.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Sod: Harvest, deliver, store, and handle sod according to requirements in TPI's "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" in its "Guideline Specifications to Turfgrass Sodding." Remove from palettes and install immediately upon delivery; all sod must be installed within 24 hours of delivery. Sod left on palettes longer than 24 hours will be rejected.

1.07 SCHEDULING

A. Planting Restrictions: Coordinate planting periods with maintenance periods to provide required maintenance until date of Substantial Completion. Proceed with planting only when existing and forecasted weather conditions permit.

1.07 LAWN MAINTENANCE

A. Begin maintenance immediately after each area is planted and continue until acceptable lawn is established and until date of Substantial Completion.
B. Maintain and establish lawn by watering, fertilizing, weeding, mowing, trimming, and replanting. Roll, re-grade, and re-sod bare or eroded areas to produce a uniformly smooth lawn. Anchor as required to prevent displacement in sloped areas.
C. Watering: Provide and maintain temporary piping, hoses, and lawn-watering equipment to convey water from sources and to keep lawn uniformly moist. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Install temporary watering system to avoid disturbing newly planted areas. Water lawn at a minimum rate of 1 inch per week.
D. Mow lawn as soon as top growth is tall enough to cut and maintain specified height. Schedule initial and subsequent mowings to maintain the grass height for headstone visibility, as indicated in the Drawings.
E. Lawn Post-fertilization: Apply fertilizer after initial mowing and when grass is dry.
F. Use fertilizer that will provide actual nitrogen of at least 1 lb/1000 sq. ft. to lawn area.

PART 2 PRODUCTS

2.01 SOD

A. Turfgrass Sod: Certified complying with TPI's "Specifications for Turfgrass Sod Materials" in its "Guideline Specifications to Turfgrass Sodding." Furnish viable healthy sod of uniform density, color, and texture, strongly rooted, and capable of vigorous growth and development when planted.
B. Turfgrass Species: Bermuda (Cynodon dactylon).

2.02 TOPSOIL

A. Existing soil: Existing topsoil within Limit of Work, as indicated on the Drawings, shall be stripped away and stockpiled in the Spoils Area or in alternative storage area as approved by the Engineer. Stockpiled existing soils shall not be used in areas to receive Imported Topsoil or to be sodded and may be used only for subsurface fill material in areas authorized by the Engineer.

B. Imported Topsoil (with Compost): "**Contractor's Mix**" as produced by **Gardenville (3606 FM 1327, Creedmoor, TX 78610; 512-329-4900) or approved equal**. Soil shall be fertile, friable, topsoil with organic compost amendments, shall meet requirements of ASTM D 5268 (Standard Specification for Topsoil Used for Landscaping Purposes), have a pH range of 6.0 to 7.5, and contain **25 percent organic material content**. Soil shall be screened for maximum allowable particle size of 3/8".

C. Compost amendments shall have the following characteristics:
   1. pH range of 7.0 and 8.7;
   2. Moisture content at 35%-55% of fresh weight;
   3. Organic matter content >25% of dry weight;
   4. Screened for maximum particle size of 3/8";
   5. Carbon/Nitrogen ratio of 20:1 max.
   6. Supplied by a USCC (United States Compost Council) certified provider;
   7. Meet the requirements of TxDOT Special Specification Item 1058.

D. Soil containing weed seed or composted organic material derived from sewage byproducts will be rejected. Do not obtain topsoil from agricultural lands, marshes, or bogs. Soil shall be free of clay lumps, coarse sands, stones, plants, roots, sticks, and other foreign materials.

2.03 PLANTING ACCESSORIES

A. Selective Herbicides: EPA registered and approved, of type recommended by manufacturer for application.

2.04 FERTILIZER

A. Fertilizer: Fertilizer containing 10% nitrogen, 20% phosphoric acid and 10% potash, by weight, or similar approved composition, applied as recommended by soil testing laboratory.

2.05 MULCH

A. Mulch shall be coarse, ground, from tree and woody brush sources. The minimum range of fine particles shall be 3/8 inch or less in size and a maximum size of individual pieces shall be approximately 1 to 1-1/2 inch in diameter and maximum length of approximately 4 to 8 inches. No more that 25% of the total volume shall be fine particles and no more than 20% of total volume be large pieces.
   1. It is understood that Mulch quality will vary significantly from supplier to supplier and region to region. The above requirements may be modified to conform to the source material from locally reliable suppliers as approved by the Owner's Representative.

B. Submit suppliers product data that product meets the requirements.

2.05 WOOD CHIPS

A. Wood Chips from an arborist chipping operation with less than 20% by volume green leaves. Chips stockpiled from the tree removal process may be used.

2.06 TREE PROTECTION FENCING

A. Heavy - duty orange plastic mesh fencing fabric 48 inches wide. Fencing shall be attached to metal "U" or "T" post driven into the ground of sufficient depth to hold the fabric solidly in place without sagging. The fabric shall be attached to the post using attachment ties of sufficient number and strength to hold up the fabric without sagging. The Owner's Representative may request, at any time, additional post, deeper post depths and or additional fabric attachments if the fabric begins to sag, lean or otherwise not present a sufficient barrier to access.

2.07 FILTER FABRIC

A. Filter Fabric shall be nonwoven polypropylene fibers, inert to biological degradation and resistant of naturally occurring chemicals, alkalis and acids.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine areas to receive lawns and grasses for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.
B. Examine trees to be protected for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Notify Operator at least 7 working days prior to start of seeding operations.
B. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
C. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
D. Restrict traffic from lawn areas until grass is established. Erect signs, flagging, and barriers as necessary to protect trees to remain and new work.

3.03 LAWN PREPARATION

A. Preparation: Limit lawn subgrade preparation to areas to be planted. Phase work as required to prevent erosion during rainfall events and to facilitate prompt replacement of turfgrass in areas near existing headstones, as indicated in the Drawings.
B. Newly Graded Subsoils: Rough grade subsoils and prepare for installation of Imported Topsoil.
    1. Remove all existing turfgrass, vegetation, and or weeds.
    2. Scarify existing subsoils to a depth of 2 inches.
C. Remove stones larger than 1-inch in any dimension and all sticks, roots, trash, debris, and other extraneous matter and legally dispose of waste off project site.

D. Finish Grading: Fine grade areas to be sodded to a smooth uniform surface plane and a uniformly fine texture. Grade to within plus or minus 1/2 inch of finish topsoil elevation (measured over 10 feet of the prevailing grade) indicated in the Drawings. Roll finish grade to provide 80-85% compaction for landscape surfaces and rake, remove ridges, and fill depressions to meet specified finish grades. Finish grade shall be held to an elevation precisely and consistently ½" below adjoining paving and curbs after compaction.
E. Irrigation: Moisten prepared topsoil areas before sodding if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil or lay sod on muddy soil.

3.04 SODDING

A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.
B. Install initial row of sod in a straight line, beginning at bottom of slopes, perpendicular to direction of slope, to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to subgrade or sod during installation. Tamp and roll lightly to ensure contact with subgrade, eliminate air pockets, and form a smooth surface. Work topsoil into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.
C. Saturate sod with fine water spray within two hours of planting. During first week, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.

3.05 SATISFACTORY LAWNS

A. Satisfactory Sodded Lawn: At Substantial Completion, a healthy, well-rooted, even-colored, viable lawn, free of weeds, open joints, bare areas, and surface irregularities.
B. Re-establish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

3.06 LIMITS TREE PROTECTION

A. The Tree and Plant Protection Area is defined as all areas indicated on the tree protection plan. Where no limit of the Tree and Plant Protection area is defined on the drawings, the limit shall be the drip line (outer edge of the branch crown) of each tree.

3.07 TREE PROTECTION INSTALLATION

A. Prior to the preconstruction meeting, layout the limits of the Tree and Plant Protection Area and then alignments of required Tree and Plant Protection Fencing and root pruning. Obtain the Owner’s Representative's approval of the limits of the protection area and the alignment of all fencing and root pruning.
B. Flag all trees and shrubs to be removed by wrapping orange plastic ribbon around the trunk and obtain the Owner’s Representative's approval of all trees and shrubs to be removed prior to the start of tree and shrub removal. After approval, mark all trees and shrubs to be removed with orange paint in a band completely around the base of the tree or shrub 4.5 feet above the ground.
C. Flag all trees and shrubs to remain with white plastic ribbon tied completely around the trunk or each tree and on a prominent branch for each shrub. Obtain the Owner’s Representative's approval of all trees and shrubs to be remain prior to the start of tree and shrub removal.
D. Heavy - duty orange plastic mesh fencing fabric to be along the approved layout of the tree protection area prior to the start of demolition and clearing near the trees to be preserved. The Contractor may propose an alternative method of tree protection if the work space becomes limited and it is agreed upon by the Owner’s Representative.

3.08 PROTECTION

A. Protect the Tree Protection Area at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves and roots of all plants; and contamination of the soil, bark or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the Owner’s Representative of any spills, compaction or damage and take corrective action immediately using methods approved by the Owner’s Representative.

3.09 CLEANUP

A. Promptly remove soil and debris created by lawn work from all project landscape and paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas. Erect barricades and warning signs as required to protect newly sodded areas from traffic. Maintain barricades throughout maintenance period and remove after lawn is established. Remove erosion-control and tree protection measures after grass establishment period.

3.10 DAMAGE OR LOSS TO EXISTING PLANTS AND TREES TO REMAIN

A. Any tree that is determined to be dead, damaged or potentially hazardous by the Owner's arborist and upon the request of the Owner's Representative shall be immediately removed by the Contractor at no additional expense to the owner. Tree removal shall include all clean up of all wood parts and grinding of the stump to a depth sufficient to plant the replacement tree or plant, removal of all chips from the stump site and filling the resulting hole with topsoil.

END OF SECTION

Appendix A – Pre-Construction Photos


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