



TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER™

Project Manual for

Texas Tech University Health Sciences Center

Preston Smith Research Library Renovation Levels 1 & 2

Lubbock, Texas

Issue for Construction

March 21, 2025

Volume 1

SECTION 000107 - PROFESSIONAL SEALS
Texas Tech University Health Sciences Center
Preston Smith Research Library Level 01/02 Renovation
Lubbock, Texas



DESIGN PROFESSIONAL OF RECORD

- **Architecture:**

1. Sealer's Firm: Page, Inc
2. Responsible for:
 - a. Division 00 and 01 Sections ONLY AS NOTED
 - b. 024119 Selective Demolition
 - c. 033543.16 Sealed Concrete Finishing
 - d. 055001 Metal Fabrications Interior
 - e. 060660 Plastic Fabrications
 - f. 061001 Rough Carpentry Interior
 - g. 064100 Architectural Wood Casework
 - h. 068316 Fiberglass Reinforced Paneling
 - i. 078400 Firestopping
 - j. 078413 Penetration Firestopping
 - k. 079200 Joint Sealants
 - l. 081113 Hollow Metal Doors and Frames
 - m. 081416 Flush Wood Doors
 - n. 083113 Access Doors and Frames
 - o. 083346 Overhead Coiling Countertop Grills
 - p. 084113.23 Interior Aluminum-Framed Storefronts
 - q. 087100 Door Hardware
 - r. 088000 Glazing
 - s. 090561 Common Work Results for Flooring Preparation
 - t. 092216 Non-Structural Metal Framing
 - u. 092900 Gypsum Board
 - v. 093000 Tiling
 - w. 095123 Acoustical Tile Ceilings
 - x. 096516 Resilient Sheet Flooring
 - y. 096623 Resinous Matrix Terrazzo Flooring
 - z. 096813 Tile Carpeting
 - aa. 097723 Fabric-Wrapped Acoustical Panels
 - bb. 098413 Fixed Sound-Absorptive Panels



2025-03-21

SECTION 000107 - PROFESSIONAL SEALS
Texas Tech University Health Sciences Center
Preston Smith Research Library Level 01/02 Renovation
Lubbock, Texas



DESIGN PROFESSIONAL OF RECORD

- **Mechanical Engineering:**

1. Sealer's Firm: Fanning, Fanning & Associates, Inc.
2. Responsible for:
 - a. 230000 General Provisions for Mechanical/Electrical
 - b. 233000 Piping and Accessories
 - c. 233800 Marking and Identification
 - d. 234000 Air Distribution
 - e. 235000 Hangers and Supports
 - f. 236000 Insulation
 - g. 237000 Equipment
 - h. 237100 Rooftop Unit for Rare Books Room
 - i. 238000 Contract for Testing, Adjusting and Balancing
Mechanical System (Not in Contract - Information
Only)
 - j. 250000 Temperature Regulation



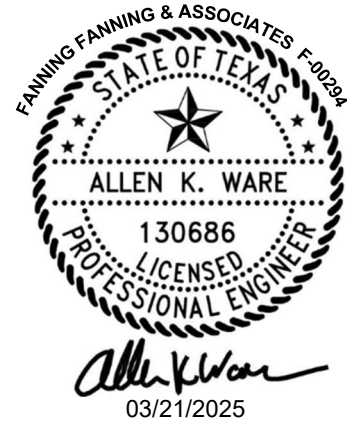
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Texas Tech University Health Sciences Center
Preston Smith Research Library Level 01/02 Renovation
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DESIGN PROFESSIONAL OF RECORD

- **Electrical Engineering:**

1. Sealer's Firm: Fanning, Fanning & Associates, Inc.
2. Responsible for:
 - a. 260100 Basic Electrical Requirements
 - b. 260518 Wires and Cables
 - c. 260525 Grounding and Bonding
 - d. 260532 Raceways
 - e. 260534 Boxes
 - f. 260552 Electrical Identification
 - g. 260943.13 Digital-Network Lighting Controls
 - h. 262416 Panelboards
 - i. 262726 Wiring Devices
 - j. 262815 Safety Switches
 - k. 264600 Dry-Type Transformers
 - l. 265100 Lighting
 - m. 283300 Fire Alarm and Detection System



SECTION 000107 - PROFESSIONAL SEALS
Texas Tech University Health Sciences Center
Preston Smith Research Library Level 01/02 Renovation
Lubbock, Texas



DESIGN PROFESSIONAL OF RECORD

- **Plumbing Engineering:**

1. Sealer's Firm: Fanning, Fanning & Associates, Inc.
2. Responsible for:
 - a. 210000 Fire Protection Sprinkler System
 - b. 223000 Plumbing Systems



Texas Tech University Health Sciences Center
Preston Smith Library Levels 1 and 2
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| HUB Program | Historically Underutilized Business Participation for Contracts over \$1,000,000.00 | Issue for Construction | TTU | N/A |
| 00 52 36 | Sample TTUS Competitive Sealed Proposal Construction Services Agreement | Issue for Construction | TTU | N/A |
| 00 54 10 | Tax Exemption Certificate | Issue for Construction | TTU | N/A |
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| 01 58 13A | Exterior Construction Project Signage Template | Issue for Construction | TTU | N/A |
| 01 60 00 | Product Requirements | Issue for Construction | TTU | N/A |
| 01 77 00 | Closeout Requirements | Issue for Construction | TTU | N/A |
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| 233800 | Marking and Identification | Issue for Construction | FF&A | 21 March 2025 |
| 234000 | Air Distribution | Issue for Construction | FF&A | 21 March 2025 |
| 235000 | Hangers and Supports | Issue for Construction | FF&A | 21 March 2025 |
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|-----------------------|---|
| Design Professional: | PAGE Lisa Kincaid, AIA 1800 Main Street, Suite 123 Dallas, Texas 75201 T: (469) 621-4781 / email: lkinaid@pagethink.com FANNING, FANNING & ASSOCIATES, INC. Scott Fanning, PE 2555 74th Street Lubbock, Texas 79423 T: (806) 745-2533 / email: sfanning@fanningfanning.com |
| Sr. Program Director: | Texas Tech University System Rick Richeda P.O. Box 42014 Lubbock, TX 79409-2014 806.742.2116 |

DIVISION 00: PROCUREMENT AND CONTRACT REQUIREMENTS

| <u>DIVISION</u> | <u>DESCRIPTION</u> |
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| 00 21 13 | Instructions to Proposers – CSP Request for Proposals (RFP) Document |
| HUB Program | Historically Underutilized Business Participation for Contracts over \$1,000,000.00 |
| 00 52 36 | Sample TTUS Competitive Sealed Proposal Construction Services Agreement |
| 00 54 10 | Tax Exemption Certificate |
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| <u>DIVISION</u> | <u>DESCRIPTION</u> |
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TEXAS TECH UNIVERSITY SYSTEM
Facilities Planning and Construction™

REQUEST FOR PROPOSAL
COMPETITIVE SEALED PROPOSALS (CSP)
for
CONSTRUCTION SERVICES

TTUHSC Lubbock – Preston Smith Library Renovation - 2nd Floor

FP&C Project Number 25-04

Texas Tech University Health Sciences Center

Lubbock, Texas

DEADLINE FOR SUBMISSION OF PROPOSALS / HSP

3:00 PMCT, Wednesday, April 16, 2025 (**Proposal**)

10:00 AMCT, Thursday, April 17, 2025 (**HSP and Public Opening**)

Facilities Planning and Construction
Texas Tech University System
Box 42014
Lubbock, TX 79409
Phone: 806-742-2116

The Texas Tech University System is an Equal Opportunity Employer and encourages all Historically Underutilized Businesses to participate.

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SECTION 1. NOTICE TO PROPOSERS

1.1 Request for Proposals for Competitive Sealed Proposals for Construction Services

- 1.1.1 Pursuant to Texas Education Code §51.783, in accordance with the terms, conditions and requirements set forth in this Request for Proposal (RFP), Texas Tech University System (Texas Tech) seeks Competitive Sealed Proposals (CSP) for Construction Services from qualified Contractors (Proposers) for the Project described below and as further detailed in the attached Contract Drawings and Specifications.
- 1.1.2 This Request for Proposal (RFP) is the only step for selecting a Contractor for the Project as provided by Texas Education Code §51.783(d). This Request for Competitive Sealed Proposals provides the information necessary to prepare and submit Proposals on the Project, including the minimum scope of Construction Services required, and information to aid in preparing Proposals in response to this RFP for consideration and ranking by Texas Tech.
- 1.1.3 All inquiries regarding this Request for Competitive Sealed Proposals for Construction Services must be in writing and directed to Texas Tech Sr. Program Director and Design Professional below. Questions directed to other agencies or Texas Tech officials will not receive consideration or a response.
- 1.1.4 Texas Tech will evaluate the inquiries and questions to determine whether a response is required. All questions, responses and additional information will be included in an Addendum which will be posted to the Texas Electronic State Business Daily (ESBD) website and to the Trimble Unity Construct (formerly e-Builder) Bid Portal, which can be accessed through Texas ESBD website posting.
 - 1.1.4.1 It is the responsibility of all interested companies to periodically check the ESBD and/or the Trimble Unity Construct (formerly e-Builder) Bid Portal (which can be accessed through the following ESBD website) for any posted Addenda:
<http://www.txsmartbuy.com/sp>. Google Chrome is the recommended browser for accessing this website.
- 1.1.5 Proposer, Bidder, and Contractor shall mean the individual, partnership, corporation, or other entity responding to this RFP.
- 1.1.6 Following successful negotiations with Texas Tech, the selected Proposer will be expected to sign a Construction Services Agreement with the stipulated sum contract value being the final amount agreed upon in the negotiations with Texas Tech. A copy of the CSP Construction Services Agreement is included in this RFP.
- 1.1.7 Except as provided in this RFP and as otherwise necessary for the conduct of existing Texas Tech business operations, Proposers are expressly and absolutely prohibited from engaging in communications with Texas Tech personnel who are involved in any manner in the drafting of this RFP, in the review or evaluation of the submission, in selection of a Contractor or negotiation or formalization of a CSP Construction Services Contract. If any Proposer engages in conduct or communications that Texas Tech determines is contrary to the prohibitions set forth in this section, Texas Tech may at its sole discretion, disqualify the Proposer and remove the Submission from consideration.
- 1.1.8 Proposer recognizes and understands that any cost incurred by the Proposer which arises from Proposer's participation in the RFP process shall be at the sole risk and responsibility of Proposer. Proposers submit Proposals at their own risk and expense.
- 1.1.9 By signing and submitting a Proposal, Proposer certifies they are a qualified Contractor, and that any attached or referenced conditions or documents are applicable to this procurement only to the

extent that they do not conflict with the statutes or Administrative Code of the State of Texas, or the advertised Contract conditions, and that they do not impose additional requirements on Texas Tech. Proposer further certifies that the submission of a Proposal is Proposer's good faith intent to contract with Texas Tech as specified herein and that such intent to contract is not contingent upon Texas Tech's acceptance or execution of any such attached or referenced conditions, or other documents.

- 1.1.10 By signing the Proposal, the Proposer acknowledges they have reviewed the Contract Documents in entirety and have covered the costs for the entire scope of the Work.

1.2 Project Information

1.2.1 Project:

| | |
|-----------------------------------|---|
| Project Name: | TTUHSC Preston Smith Library-2 nd Floor Renovation |
| Project Number: | 25-04 |
| Institution: | Texas Tech University Health Sciences Center |
| Location: | Lubbock, Texas |
| Texas Tech Sr. Program Director: | Richard A. Richeda (email: rick.richeda@ttu.edu) |
| Expected Construction Start: | May 2025 |
| Expected Construction Completion: | April 2026 |
| Design Professional: | <p>Lisa Kincaid, AIA lkinaid@pagethink.com) PAGE 1800 Main Street, Suite 123 Dallas, Texas 75201 (469) 621-4781</p> <p>Scott Fanning, PE sfanning@fanningfanning.com FANNING, FANNING & ASSOCIATES, INC. 2555 74th Street Lubbock, Texas 79423 (806) 745-2533</p> |

1.3 Scope of the Work

- 1.3.1 Texas Tech University System and Texas Tech University Health Sciences Center will renovate the entire 29,837 GSF second floor for student support, collaboration areas, maker space, office suites, rare book room, Academy of Teaching- Leadership and Learning space, and Global Health. In addition, areas on the first floor will be renovated as part of this project.
- 1.3.2 The selected Proposer will be responsible for the accomplishment and coordination of all construction activities indicated in the Contract Documents. In addition, the awarded Contractor shall be responsible for the coordination of the Work under this Contract with work by Texas Tech and other Contractors.
- 1.3.3 Proposers may obtain or access the Contract Documents (i.e., Specifications, Drawings, and Addenda) for preparing their proposals for this Project at: <http://www.txsmartbuy.com/sp>.

SECTION 2. PROPOSAL INFORMATION

2.1 Proposal Response

- 2.1.1 Proposals are due: **3:00 PM CT, Wednesday, April 16, 2025**
- 2.1.2 HUB Subcontracting Plans (HSP) are due: **10:00 AM CT, Thursday, April 17, 2025**
- 2.1.3 Proposals and HUB Subcontracting Plans will be received electronically by Texas Tech through the Trimble Unity Construct (formerly e-Builder) Bid Portal. Instructions for this process will be provided as a separate document on the ESBD website RFP posting.
- 2.1.4 All communications relating to this RFP must be submitted in writing through the Trimble Unity Construct (formerly e-Builder) Bid Portal by the date indicated in the schedule of events. Questions, responses, and Addenda issued related to this RFP, if any, will be posted to the ESBD website and to the Trimble Unity Construct (formerly e-Builder) Bid Portal. Responses issued by formal written Addenda are binding and contractual. Oral and other interpretations or clarifications will be without legal effect.
- 2.1.4.1 NOTE: It is the responsibility of the Proposer to review the ESBD and the Trimble Unity Construct (formerly e-Builder) Bid Portal for any Addenda posted. For any problems encountered with the Trimble Unity Construct (formerly e-Builder) Bid Portal, contact Ms. Alexis Henry, TTUS Contract Administrator, alexis.henry@ttu.edu.
- 2.1.5 All Proposals should be clearly identified with the **Project Name and Project Number**.
- 2.1.6 Upload true (searchable) PDF Proposals, inclusive of Proposal Form and Proposer's Execution of Offer, via the Trimble Unity Construct (formerly e-Builder) Bid Portal.
- 2.1.7 For document upload guidelines, refer to the "Instructions for Trimble Unity Construct (formerly e-Builder) Bid Response Process" document accessible from the ESBD posting and the Trimble Unity Construct (formerly e-Builder) Bid Portal.
- 2.1.8 Respond to:
- Alexis Henry
Contract Administrator
Texas Tech University System
Facilities Planning & Construction
alexis.henry@ttu.edu

2.2 Tentative Schedule:

| | |
|--|---------------------------------------|
| RFP Posted | Tuesday, March 25, 2025 |
| Pre-Proposal Conference and Site Visit | Monday, March 31, 2025, 1:00 PM CT |
| Written Inquiries Due | Tuesday, April 8, 2025, 10:00 AM CT |
| Addenda to Inquiries Posted | Thursday, April 10, 2025, 3:00 PM CT |
| Proposal Submission Due | Wednesday, April 16, 2025, 3:00 PM CT |
| HUB Subcontracting Plan (HSP) Due | Thursday, April 17, 2025, 10:00 AM CT |
| <i>*Public Opening immediately following the HSP deadline</i> | |
| Short List / Select Contractor | Thursday, April 24, 2025, 3:30 PM CT |
| Contractor Interviews | TBD (<i>If required</i>) |
| BOR Approval | Thursday, May 8, 2025 |

Notice to Proceed

Thursday, May 22, 2025 (Approx.)

- 2.2.1 Texas Tech reserves the right to modify this schedule as required. Consult the ESD or the Trimble Unity Construct (formerly e-Builder) Bid Portal for addenda and schedule updates.

2.3 Pre-Proposal Conference and Site Visit

- 2.3.1 **Pre-Proposal Conference:** **Monday, March 31, 2025, 1:00 PM CT**
- Texas Tech University System
Administration Building
1508 Knoxville Avenue
Board of Regents Conference Room No 104A.
Lubbock, Texas

2.3.1.1 CSP Construction Services Pre-Proposal Conference

Microsoft Teams

[Join the meeting now](#)

Meeting ID: 236 754 131 750

Passcode: oh7Uw6cg

- 2.3.1 **Site Visit:** **Immediately following the Pre-Proposal meeting.**
- 2.3.2 Representatives of Texas Tech and the Design Professional will be present to discuss proposal procedures and requirements, Contract Documents including Specifications and Drawings, Project special conditions, and HUB good-faith requirements applicable to this Project. A Site visit, if needed, will be held at the time indicated above. Proposers will have an opportunity to ask questions regarding this RFP during the meeting and are asked to follow those questions up in writing via the Trimble Unity Construct (formerly e-Builder) Bid Portal or by email to the Program Director.
- 2.3.3 Attendance by the appropriate personnel from each Proposer is highly recommended at the Pre-Proposal Conference and Site visit.
- 2.3.4 Visits to the Project Site shall occur at the TIME scheduled by Texas Tech. See schedule above. No other site access will occur prior to the Proposal submittal deadline unless Proposers contact the Sr. Program Director to schedule a time for a Site evaluation.

2.4 Receipt and Opening of Proposals

- 2.4.1 Competitive Sealed Proposals and HUB Subcontracting Plans (HSP) will be received until the date and time shown in Section 2 via the Trimble Unity Construct (formerly e-Builder) Bid Portal.
- 2.4.2 Proposals submitted without a signed Proposal Form, Proposer's Execution of Offer, and HUB Subcontracting Plans (HSP) will be disqualified.
- 2.4.3 The Proposers will submit their Proposals by the required deadline in Section 2. Then, the Proposers will submit their HUB Subcontracting Plans (HSP) by the required deadline in Section 2. Immediately following the HSP deadline, the Proposals and HSP will be publicly opened, and read aloud the names of the Proposers and, if any are required to be stated, all prices in each proposal pursuant to Texas Education Code §51.783. The public opening will be at the Texas Tech University System Administration Building, 1508 Knoxville Avenue, BOR Conference Rm 103A.

Other contents of the Proposals will be afforded confidentiality sufficient to preclude disclosure of the contents of the Proposal prior to award. Virtual meeting options will not be offered.

- 2.4.4 Within 45 days after the date of public bid opening, Texas Tech will rank the Proposers in the order that they provide best value for Texas Tech based on the published selection criteria and on the ranking evaluations. Texas Tech is not bound to accept the lowest price offered if that offer is not in its best interest, as determined by Texas Tech based on the factors stated in Section 5 Selection Criteria. Texas Tech reserves the right to: (a) enter into Agreements or other contractual arrangements for all or any portion of the scope of the Work set forth in this Proposal; (b) reject any and all offers and re-solicit; or (c) reject any and all offers and temporarily or permanently abandon this procurement, if deemed to be in the best interest of Texas Tech.
- 2.4.5 Texas Tech makes no representation that inconsistencies or award will be made as a result of this RFP and reserves the right to accept or reject any or all proposals, waive any formalities or minor technical inconsistencies, or delete any item or requirements from this RFP or resulting contract when deemed to be in Texas Tech's best value or interest. Representations made within the proposal will be binding on Proposers. Submissions which are qualified with conditional clauses, exceptions, exclusions, assumptions, or alterations or items not called for in this RFP, or irregularities of any kind, are subject to disqualification by Texas Tech at its option. Texas Tech will not be bound to act by any previous communication or proposal submitted by the Proposers other than this RFP and related Addenda. Texas Tech reserves the right to accept or reject all Proposals for which there are less than three (3) Proposals submitted.
- 2.4.6 Any Contractor's Proposal may be withdrawn prior to the above scheduled deadline for Proposals or authorized postponement thereof. No Proposer may withdraw a Proposal within sixty (60) calendar days after the actual date of the opening thereof.
- 2.4.7 Texas Tech will not acknowledge or receive Proposals, Alternates, Qualifications or HUB Subcontracting Plans that are delivered by mail or other carriers, telephone, or electronic email (email). In the event hard copy responses are received, responses will not be considered.

2.5 Competitive Sealed Proposals Preparation

- 2.5.1 General Instructions
 - 2.5.1.1 Each proposal must be prepared providing a straightforward, concise description of the Proposer's ability to meet the requirements of this RFP. Emphasis shall be on quality, completeness, clarity of content, responsiveness to the requirements, and an understanding of Texas Tech's requirements.
 - 2.5.1.2 Proposers should carefully review the information contained in this RFP, including the conditions at the Project Site, Contract Documents, and submit a complete response to all requirements and questions as directed. Incomplete Proposals will be considered non-responsive and subject to rejection.
 - 2.5.1.3 All addenda issued by Texas Tech prior to the time that proposals are received shall be considered part of the RFP. Proposer must acknowledge all addenda in Proposal Form.
 - 2.5.1.4 Proposers shall submit their Proposals and all documentation required by this RFP in one complete package with the exception of the HSP documentation which is submitted separately. Failure to include any part of the requested information or documentation may result in the disqualification of the Proposal. Proposals will be evaluated based upon the selection criteria listed below.
 - 2.5.1.5 Proposals and any other information submitted by Proposers in response to this RFP shall become the property of Texas Tech.

- 2.5.1.6 Failure to comply with the requirements contained in this RFP may result in the rejection of Proposer's proposal.

2.5.2 Format of Proposals

2.5.2.1 Table of Contents:

- 2.5.2.1.1 Include with the Proposal a Table of Contents that includes page number references. The Table of Contents should be in sufficient detail to facilitate easy reference of the sections of the Proposal as well as separate attachments (which should be included in the main Table of Contents). Supplemental information and attachments included by the Proposer (i.e., not required) should be clearly identified in the Table of Contents and provided as a separate section.

2.5.2.2 Pagination:

- 2.5.2.2.1 All pages of the Proposal should be numbered sequentially in Arabic numerals (1, 2, 3, etc.). Attachments should be numbered or referenced separately.

- 2.5.2.2.2 All page sizes should be formatted to letter-size (8 ½" x 11").

- 2.5.3 Each Proposal must be submitted on the required form. All blank spaces for Proposal prices must be completed in both written and numerical format and all EXHIBITS, ATTACHMENTS, or APPENDICES must be completed and attached.

- 2.5.3.1 Discrepancies between written and numerical format will be resolved in favor of written. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

- 2.5.4 Texas Tech is not responsible for equipment or software failures, internet, or website downtime, corrupt or unreadable data, or other technical issues that may cause delay or non-delivery of a Proposal of inaccessibility of the submitted data.

- 2.5.4.1 Proposers are highly encouraged to prepare and allow for sufficient time to familiarize themselves with the electronic submission requirements and to address any technical or data issues PRIOR to the Proposal due date and time.

- 2.5.4.2 Proposer is responsible for ensuring it has the technical capability to submit its proposal via electronic submission.

- 2.5.5 No quick-response (QR) codes will be accepted as part of the Proposal and may disqualify the Proposal.

2.6 Ownership of Proposals and Public Information

- 2.6.1 Submitted Proposals, documentation and supporting materials shall become the property of Texas Tech.
- 2.6.2 Texas Tech considers all Proposal information, documentation and supporting materials submitted in response to this Proposal request to be non-confidential and/or non-proprietary in nature, and therefore, shall be subject to the public disclosure under the Texas Public Information Act (Texas Government Code, Sec. 552.001, et seq.) after the award of the contract.

2.7 Site Investigation

- 2.7.1 It is the responsibility of each Proposer to examine the Project Site, existing improvements and adjacent property and be familiar with existing conditions before submission of a Proposal.

- 2.7.2 After investigating the Project Site and comparing Contract Documents with the existing conditions, the Proposer should immediately notify Texas Tech and the Design Professional of any conditions for which requirements are not clear or about which there is any question regarding the extent of the Work involved.
- 2.7.3 In the event the successful Proposer does not conduct a Site investigation, and should a question arise after award of the Contract as to the extent of the Work involved in any particular case, Texas Tech, after receiving recommendations from Design Professional, will make the interpretation of Contract Documents.

2.8 Separation of Charges for Materials and Labor

- 2.8.1 With regard to the status of the Proposer under the Texas Tax Code as a reseller to Texas Tech of materials to be incorporated into the Work, the contract price shall include the allocation for materials and labor.

2.9 Performance and Payment Bonds

- 2.9.1 A Payment Bond in the amount of one hundred percent (100%) of the Contract Sum will be required (if the contract amount exceeds \$25,000.00).
- 2.9.2 A Performance Bond in the amount of one hundred percent (100%) of the Contract Sum will be required if the Contract amount exceeds \$100,000.00. The associated cost of the bond shall be identified in the Proposal document.
- 2.9.3 The successful Proposer must furnish Performance and Payment Bonds, if required as stated above, in the Contract Sum. The bonds must be issued by one or more corporate sureties qualified to do business in Texas and acceptable to Texas Tech. The associated cost of the required bond(s) shall be identified in the Proposal document.

2.10 Insurance Requirements

- 2.10.1 Proposer shall provide for the insurance coverage as required by the Agreement and Uniform General Conditions and Supplementary General Conditions (UGSC).
- 2.10.2 The successful Proposer shall not commence Work under the Agreement until it has obtained all the insurance required hereunder, with Texas Tech University System as a named insured and certificates of such insurance have been filed with and approved by Texas Tech. Approval of the insurance by Texas Tech shall not relieve or decrease the liability of the Proposer.
- 2.10.3 Proposer shall be responsible for the deductible associated with all Builder's Risk claims.

2.11 Damages for Failure to Enter into Contract

- 2.11.1 The successful Proposer, upon the Proposer's failure or refusal to execute and deliver the contract and bonds required within ten (10) days after the Proposer has received notice of acceptance of this Proposal, shall forfeit to Texas Tech, as damages for such failure or refusal, the Proposal Security, as described in Section 4.7 Security Bid/Bond.

2.12 Time of Completion and Liquidated Damages

- 2.12.1 The time stipulated in the Agreement for the completion of the Work as stated by the Proposer in the Proposal is an essential element of the Agreement. It is mutually agreed that Texas Tech will suffer damages in an amount not now possible to ascertain if this Work is not completed on schedule.
- 2.12.2 Damages for Failure to Meet Substantial Completion

- 2.12.2.1 It is agreed that Texas Tech will withhold from the successful Proposer, as liquidated damages and not as a penalty, the sum as designated in the Proposal for each calendar day that the Work remains incomplete beyond the date specified for the Substantial Completion of the Work.

2.12.3 Damages for Failure to Meet Final Completion

- 2.12.3.1 The Parties recognize and acknowledge that despite access to the Project after achieving Substantial Completion, any delay in achieving Final Completion will cause inconvenience and/or disruption of use of the Project for Texas Tech.
- 2.12.3.2 For each consecutive calendar day after the completion of thirty (30) days from the date of Substantial Completion that Final Completion is not met, taking into account any extensions of time granted by any Change Order, it is agreed that Texas Tech will withhold from the successful Proposer, as liquidated damages and not as a penalty, the sum as designated in the Proposal for each calendar day that the Work remains incomplete.

2.13 Acceptance of Alternates

- 2.13.1 Texas Tech will have the right to accept alternates in any order and/or combination, unless otherwise specifically provided in the Proposal documents, and to determine the Agreement amount on the basis of the sum of the Base Proposal and accepted Alternates.

2.14 Obligation of Proposers

- 2.14.1 At the time of the opening of Proposals, each Proposer shall be presumed to have inspected the Project Site and to have read and be thoroughly familiar with the Contract Documents related to the Work. The failure or omission of any Proposer to examine the Site, the Contract Documents, any form, instrument or referenced documents shall in no way relieve the Proposer from any obligation in respect to its Proposal.

SECTION 3. MINIMUM REQUIRED CONSTRUCTION SERVICES

The Contractor will be responsible for all Construction Services including, but not limited to the following:

3.1 Construction Management Team

- 3.1.1 Assignment of qualified Project management professionals with the knowledge, experience, expertise, urgency and partnering mindset to deliver a successful Project. The designated Contractor team must be able to anticipate possible risks that may impact the Project's time, quality, and budget and collaborate with Texas Tech to successfully resolve those issues to the betterment of the Project.
 - 3.1.1.1 Construction Services
 - 3.1.1.1.1 Project Construction Team Management
 - 3.1.1.1.2 Constructability Review Assessment
 - 3.1.1.1.3 Construction Execution Plan (Schedule, Logistics & Execution Planning)
 - 3.1.1.1.4 Construction Safety and Health Plan
 - 3.1.1.1.5 Quality Controls and Quality Assurance Plan
- 3.1.2 Coordination of specialty construction consultants, delegated design companies, and outside resources.

- 3.1.3 Coordination between Texas Tech and third-party services, Design Professionals, Subcontractors, Component Institutions, and Construction Management team.
- 3.1.4 Document communication
 - 3.1.4.1 Define roles and responsibilities of the Contractor Team players,
 - 3.1.4.2 Contractor administrative procedures (Action Items Logs, delegated task assignment, reporting, design comparison logs, etc.),
 - 3.1.4.3 Meeting organization and management (agendas, meeting minutes),
 - 3.1.4.4 Construction (summaries with detailing, initial and reoccurring),
 - 3.1.4.5 Qualifications Logs (assumptions, clarifications, exceptions),
 - 3.1.4.6 Construction Schedules (present baseline schedule), and
 - 3.1.4.7 Constructability Review Assessment (scope gap logs, missing scope detailing, contradictory scope and detailing, undefined scope, additive alternates sequencing, etc.).
- 3.1.5 Third-party coordination, included but not limited to:
 - 3.1.5.1 Public Utility companies,
 - 3.1.5.2 Component Institution Facilities Teams,
 - 3.1.5.3 Governmental & Regulatory Agencies,
 - 3.1.5.4 Component Institution's third-party IT/AV group,
 - 3.1.5.5 Fire Marshal (Authority Having Jurisdiction),
 - 3.1.5.6 FM Global,
 - 3.1.5.7 Owner's Commissioning Agent,
 - 3.1.5.8 Owner's Testing, Adjusting & Balancing (TAB) Contractor,
 - 3.1.5.9 Design Professional's Geotechnical Engineer,
 - 3.1.5.10 Owner's Materials Testing and Inspection Professional, and
 - 3.1.5.11 Owner's Construction Manager-Agent, if required.

3.2 Construction Services

- 3.2.1 Adhere to Project scope and quality.
- 3.2.2 Comply with TTUS FP&C Design and Construction Standards. Notify Owner when design intent deviates from prescribed guidelines.
- 3.2.3 Review and report to the Project Team regarding Site considerations and challenges.
- 3.2.4 Utilize TTUS technology platforms (Trimble Unity Construct (formerly e-Builder), Bluebeam, virtual web-based conferencing). Provide continuous Constructability Reviews, Means and Methods Assessments, and Construction Execution Planning cost analysis.
- 3.2.5 Provide continuous Construction Schedule updates.
- 3.2.6 Make recommendations on means, methods, and materials options to optimize the Project scope of the Work and reduce construction duration schedule.

- 3.2.6.1 Provide timely information regarding all known and/or potential materials or market impacts that could affect schedule or cost.
- 3.2.7 The Contractor shall provide a Critical Path, longest duration construction schedule, and a detailed list of all construction and construction management costs by CSI (specification divisions), including any fees and allowances.
- 3.2.8 The CSP should also include a list of any qualifications, assumptions and/or clarifications used in the development of the CSP as well as a log of all observed design scopes lacking sufficient detail or clarity of intent.
- 3.2.9 Contractor should include:
 - 3.2.9.1 Insurance, bonds (rate percentages),
 - 3.2.9.2 Cost of construction by division,
 - 3.2.9.3 Owner stipulated Allowances (by division and/or type), and
 - 3.2.9.4 Owner stipulated Contingencies.
- 3.2.10 Provide materials and services procurement analysis for each Specification division.
- 3.2.11 Coordinate geotechnical and Owner's third-party material testing and inspection requirements.
- 3.2.12 Provide a Construction Execution Plan (CEP) for the Work with anticipated time frames that take into consideration Project specific requirements and convey the manner in which the Contractor intends to approach completion of the construction Project scope. The CEP should include but not be limited to the following:
 - 3.2.12.1 Site conditions and constraints (staging, laydown areas, temporary facilities plan, lifting equipment placement locations, etc.),
 - 3.2.12.2 Proposed phasing and sequencing of the Work focused on minimizing disruption of Texas Tech's daily activities and capital investment rework/loss,
 - 3.2.12.3 Anticipate planned shutdowns for connection to campus/public utilities (chilled water, steam, electric, domestic water, sanitary, gas, etc.),
 - 3.2.12.4 Early completion of MDF/IDF for Texas Tech networking equipment installations,
 - 3.2.12.5 Coordination of Texas Tech's proprietary keyway system for keyway installations,
 - 3.2.12.6 Completion of spaces as agreed with Texas Tech for partial early occupancy (if Project requires),
 - 3.2.12.7 Use of swing space (if Project requires),
 - 3.2.12.8 Commissioning and TAB,
 - 3.2.12.9 Third-party Texas Tech FF&E and move management coordination (Contractor cooperation to have scope completed including Life Safety systems in advance to facilitate Texas Tech's installations – use of vertical conveyance systems, stair completions, etc.),
 - 3.2.12.10 Coordination of Texas Tech required training for specified building systems, and
 - 3.2.12.11 Other Project specific items as the Project requires and dictates.

- 3.2.13 Develop a Submittals Schedule to sequence the Construction Execution Plan (CEP) with the Construction Schedule to ensure timely delivery of the Project. Identify long lead time materials and schedule submissions such as to not delay the CEP.
- 3.2.14 Provide full-time, on-site staff as required to plan, manage, and coordinate all on-site construction activities (this includes the monitoring of worker safety, construction quality control and the management of all self-performed and Subcontractor Work).
 - 3.2.14.1 The Contractor is responsible for inspection of all Work for compliance with the Construction Documents prior to requesting Texas Tech observations.
- 3.2.15 Provide support for Texas Tech's on-site Program Director and/or Field Observer, including separate office space, internet access, access to a copier, and other support, if required by Texas Tech.
- 3.2.16 Conduct Project meetings as required by Texas Tech.
 - 3.2.16.1 Attend and schedule frequency of Project meetings as required to successfully coordinate the Work and construction scope.
 - 3.2.16.2 Prepare written progress reports identifying urgent construction issues, proposed actions to be taken, and deadlines established.
- 3.2.17 Prepare a detailed CPM, longest duration, construction schedule, prepare a short-term activities plan, and a completion/occupancy schedule.
 - 3.2.17.1 Update the schedules monthly.
 - 3.2.17.2 Submit an updated, detailed CPM construction schedule with each Payment Application.
 - 3.2.17.3 Track all Project delays and report monthly to Owner.
 - 3.2.17.4 Schedule shall include Texas Tech coordination activities required to achieve Substantial Completion, but not be limited to:
 - 3.2.17.4.1 Substantial Completion date,
 - 3.2.17.4.2 Final Completion date,
 - 3.2.17.4.3 Life/safety systems certifications (AHJ),
 - 3.2.17.4.4 Elevator QEI (if applicable),
 - 3.2.17.4.5 TAS inspection,
 - 3.2.17.4.6 MDF / IDF early completion – to facilitate BAS LAN network switch installation,
 - 3.2.17.4.7 Building grounding system inspection,
 - 3.2.17.4.8 Emergency Genset – manufacturer start-up and load bank testing (if applicable),
 - 3.2.17.4.9 Gas-fired equipment – manufacturers start-up and boiler inspections,
 - 3.2.17.4.10 Lightning protection system – impedance testing for LPI Master Label Certification,
 - 3.2.17.4.11 Glazed systems – water penetration testing (AAMA 501.2),
 - 3.2.17.4.12 Bacteriological testing – domestic water,

- 3.2.17.4.13 Fume hood certification (if applicable),
- 3.2.17.4.14 Medical gases certification (if applicable),
- 3.2.17.4.15 Operational demonstration: MEP, irrigation, audio and visual equipment, food service equipment, humidifiers, sterilizers, lab equipment, specialty equipment, others as defined under the Project,
- 3.2.17.4.16 Accreditation body reviews (if applicable),
- 3.2.17.4.17 Commissioning / TAB milestones / BAS / lighting control systems,
- 3.2.17.4.18 FF&E installation,
- 3.2.17.4.19 Texas Tech move in,
- 3.2.17.4.20 Public art coordination and installation,
- 3.2.17.4.21 Texas Tech's IT/AV installation,
- 3.2.17.4.22 Submission of O&M's and warranties, and
- 3.2.17.4.23 Demonstration and training – video capture is required.
- 3.2.18 Monthly Construction Payment Applications to be submitted simultaneously to Texas Tech and Design Professional(s) for approval review and certification, respectively.
 - 3.2.18.1 Final submission of Application for Payment must include any Texas Tech requested revisions, be notarized, and signed off by the Design Professional(s).
 - 3.2.18.2 The Construction Pay Application must include but not be limited to Schedule of Values, photo documentation, lien waivers, prevailing wage rates and wage survey documentation, completed HUB Subcontracting Plan Progress Assessment Report (PAR), a current construction schedule and contingency logs.
 - 3.2.18.3 At fifty percent (50%) and one hundred percent (100%) completion the application must contain an updated HUB Subcontracting Plan (HSP).
- 3.2.19 Coordinate construction access to the Project and Site.
- 3.2.20 Maintain and enforce jobsite security.
- 3.2.21 Maintain and enforce jobsite safety and health policies.
- 3.2.22 Project quality assurance and quality control (QA/QC).
 - 3.2.22.1 It is the responsibility of the Contractor to coordinate the Work amongst the trades well in advance of sequenced construction execution to avoid conflicts, delays, and costly rework.
 - 3.2.22.1.1 Designate personnel to be responsible for QA/QC.
 - 3.2.22.1.2 Confirm approved submitted materials are delivered and installed.
 - 3.2.22.1.3 Confirm material installations meet or exceed contract documents.
 - 3.2.22.1.4 Provide notifications/communications to Design Team and Texas Tech on material/installation conflicts prior to installation.
 - 3.2.22.1.5 Provide on-site inspections and assurance to Texas Tech that materials and installation meet or exceed contract documents.

3.2.22.1.5.1 Include FP&C QA/QC Roles and Responsibilities Matrix duties in your QA/QC plan.

- 3.2.23 Solicit, receive, and award Best-Value subcontracts. Texas Tech reserves the right to reject Subcontractor Proposals if it is in the interest of Texas Tech to do so.
- 3.2.24 Update Texas Tech weekly on Buyout status utilizing FP&C's Buyout log.
- 3.2.25 Review testing, inspection, and commissioning reports.
 - 3.2.25.1 Resolve deficient Work with Subcontractor or self-performed Work.
 - 3.2.25.2 Document all resolutions in the Bluebeam Project.
- 3.2.26 Monitor, evaluate and administer Construction Change Requests and coordinate Texas Tech and Design Professional(s) approvals via the Construction Change Proposal process in Trimble Unity Construct (formerly e-Builder).
- 3.2.27 Institute and administer procedures for Shop Drawings, mockups, and sample submittals for processing.
 - 3.2.27.1 Review all Shop Drawings and submittals for Construction Documents compliance prior to submitting to the Design Professional and Texas Tech in Trimble Unity Construct (formerly e-Builder) for review.
 - 3.2.27.2 Utilize Bluebeam Project through the delivery of construction services.
- 3.2.28 Implement and maintain the Project Storm Water Pollution Prevention Plan (SWPPP), post required notices, submit required Notice(s) of Intent (NOI) and Notice(s) of Termination (NOT), with copies to Texas Tech. Conduct required BMP inspections, keep required records and update the plan required by Texas Commission on Environmental Quality (TCEQ).
- 3.2.29 Conduct SWPPP BMP inspections as required, keep required records and update the plan required by Texas Commission on Environmental Quality (TCEQ).
- 3.2.30 Develop a Buyout and bid package(s) execution plan that will expedite the Buyout process, affording Texas Tech the ability to make informed decisions regarding additional and additive scope inclusion with the intent of maintaining the Project Substantial Completion date.
 - 3.2.30.1 Update the Project schedule as required to adjust Work sequencing and completion to meet the agreed upon Substantial Completion date.
- 3.2.31 Implement procedures to pay Subcontractors and suppliers, including preparing a Schedule of Values and submission of Subcontractors sworn statements and waivers of lien, and submission of HUB Subcontracting Reports.
- 3.2.32 Follow all FP&C audit procedures and requirements. This includes external third-party audit services.
- 3.2.33 Prepare projections of expenditures for the initial three (3) month period and for the Project.
 - 3.2.33.1 Update these projections each month.
 - 3.2.33.2 At the beginning of the Project provide a cash flow forecast by month for the entire duration of the Project.
- 3.2.34 Assist in the installation of Texas Tech-purchased equipment and furniture and facilitate Owner in moving in building occupants.

- 3.2.35 Assist with the Texas Tech University System Director of Public Art for coordination and installation of the public artwork.
- 3.2.36 Prior to requesting official punch from Texas Tech and Design Professional, the Contractor is to initiate an internal punch of all areas, issue that Punchlist to their trade Subcontractors, complete corrective actions necessary to resolve deficient Work and verify corrective actions have resolved the deficient Work.

3.3 Project Close Out Services

- 3.3.1 Submit to Texas Tech the plan to complete all Substantial Completion Punchlist items within thirty (30) days and all Final Completion Punchlist items within seven (7) days per UGSCs.
- 3.3.2 Prepare and submit As-Built Drawings and other information to the Design Professional for the development of Record Drawings. Upload all documents to the correct folder in Trimble Unity Construct (formerly e-Builder).
- 3.3.3 Prepare internal Punchlists, conduct corrective actions, perform Final Inspections, and facilitate Texas Tech's acceptance and move-in.
- 3.3.4 Provide post-Construction follow-up for the duration of the longest warranty period by a Contractor on the Project.
 - 3.3.4.1 Review and submit warranty claim of all new systems and equipment.
 - 3.3.4.2 Maintain a Texas Tech approved warranty log for the duration of the warranty period.
- 3.3.5 Prepare Operation & Maintenance (M&O), warranty manuals, and other required Close Out Documents. Upload all electronic documents into the proper folders in Trimble Unity Construct (formerly e-Builder) prior to Substantial Completion.
- 3.3.6 Coordinate equipment start-up and training of Texas Tech personnel on new systems and equipment.
 - 3.3.6.1 Coordinate and schedule Design Professional/subconsultants and Texas Tech's presence during equipment start-up.
 - 3.3.6.2 Video record all training sessions and upload them to Trimble Unity Construct (formerly e-Builder) along with training sign in sheets.
- 3.3.7 Review and assist in analysis of all claims.
- 3.3.8 When authorized and requested, consult, advise, and assist Texas Tech with special and/or additional services beyond the scope of the Contractor's services.
- 3.3.9 Ensure that all external third-party audit findings and recommendations have been fully resolved.

3.4 Commissioning/TAB:

- 3.4.1 Assist with the implementation and execution of a Project Commissioning/TAB Plan that includes the appropriate reviews, tests, and inspections at critical points in the design and construction process. Include the building systems Commissioning scope in the Critical Path schedule.
- 3.4.2 All Project specific building systems Commissioning and Testing, Adjusting and Balancing (TAB) activities and corrective actions must be completed for Texas Tech to recognize construction Substantial Completion.

3.5 Other Services and Requirements

- 3.5.1 American Iron and Steel

- 3.5.1.1 To the extent an Agreement relates to a Project as defined in Texas Government Code §2252.201(5) (a project to construct, remodel, or alter a building, structure, or infrastructure; to supply material for such a project; or to finance, refinance, or provide funds for such a project), and no exemption in Texas Government Code §2252.203 applies, any iron or steel product produced through a manufacturing process and used in the project that is the subject of an Agreement must be produced in the United States (as defined in Texas Government Code §2252.201(4)).
- 3.5.2 Right to Audit
 - 3.5.2.1 At any time during the term of any Contract resulting from this solicitation and for a period of seven (7) years thereafter, Texas Tech or a duly-authorized audit representative of Texas Tech or the State of Texas, at its expense and at reasonable times, reserves the right to audit Contractor's records and books relevant to all services provided under this Contract. In the event such an audit by Texas Tech reveals any errors/overpayments by Texas Tech, Contractor shall refund Texas Tech the full amount of such overpayments within thirty (30) days of such audit findings, or Texas Tech, at its option, reserves the right to deduct such amounts owing Texas Tech from any payments due Contractor.
- 3.5.3 Access to Documents
 - 3.5.3.1 To the extent applicable to this procurement, in accordance with Public Law 99-499 under TEFRA, Contractor agrees to allow, during and for a period of not less than seven (7) years after the Contract term, access to this Contract and its books, documents, and records; and contracts between Contractor and its Subcontractors or related organizations, including books, documents and records relating to same, by the Comptroller General of the United States, the U.S. Department of Health and Human Services, and their duly authorized representatives.
- 3.5.4 Compliance with Texas Government Code § 2274.002
 - 3.5.4.1 The Contractor verifies it 1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and 2) will not discriminate during the term of the Contract against a firearm entity or trade association.
- 3.5.5 Computer/Internet Requirements
 - 3.5.5.1 The Contractor shall provide its management personnel assigned to this Project with access to personal computers and internet on a daily basis.
- 3.5.6 Conflict of Interest
 - 3.5.6.1 The Contractor affirms that, to the best of its knowledge, no actual or potential conflict exists between the Contractor's family, business, or financial interests and the Contractor's services under this Agreement, and that it shall immediately inform Texas Tech regarding any possible conflict of interest that may arise.
 - 3.5.6.2 The Contractor further affirms that it shall not hire any officer or employee of Texas Tech to perform any service covered by this Agreement.
 - 3.5.6.3 If the Work is to be performed in connection with a Federal contract or grant, the Contractor shall not hire any employee of the United States Government to perform any service set forth in this Agreement.
- 3.5.7 Discrimination

- 3.5.7.1 The Contractor shall not discriminate against an employee or applicant for employment with respect to hiring, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of race, color, religion, national origin, age, veteran status, sex, or disability. Breach of this covenant may be considered a material breach of the Agreement.
- 3.5.8 Employment
 - 3.5.8.1 Pursuant to Texas Government Code § 669.003, the Contractor certifies that it does not employ, or has disclosed its employment of, any former executive head of a Texas State agency or entity.
- 3.5.9 Ethics Commission Reporting Requirements **(Required Only If Selected)**
 - 3.5.9.1 Ethics Commission Reporting Guidelines
 - 3.5.9.1.1 In 2015, the Texas Legislature adopted House Bill 1295, which added section 2252.908 of the Government Code. The law states that Texas Tech may not enter into certain contracts with a business entity unless the business entity submits a disclosure of interested parties (Form 1295) to Texas Tech at the time the business entity submits the signed Agreement to the governmental entity or state agency. The Texas Ethics Commission has adopted rules requiring the business entity to file Form 1295 electronically with the Commission.
 - 3.5.9.1.2 The law applies only to a Contract between Texas Tech that either:
 - 3.5.9.1.2.1 Requires an action or vote by the governing body of the entity or agency before the Contract may be signed; or
 - 3.5.9.1.2.2 Has a value of at least \$1 million.
 - 3.5.9.1.3 A Contract does not require an action or vote by the governing body if:
 - 3.5.9.1.3.1 The governing body has legal authority to delegate to its staff the authority to execute the Contract;
 - 3.5.9.1.3.2 The governing body has delegated to its staff the authority to execute the Contract; and
 - 3.5.9.1.3.3 The governing body does not participate in the selection of the business entity with which the Contract is entered.
 - 3.5.9.1.4 The business entity must file Form 1295 electronically with the Texas Ethics Commission using the online filing application : https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm. For assistance with passwords, call (512) 463-5800.
 - 3.5.9.1.5 See the attached form “Certificate of Interested Parties.” Direct questions relating to the Form 1295 process to: techbuy.purchasing@ttu.edu.
- 3.5.10 Acceptance of Evaluation Methodology
 - 3.5.10.1 By submitting a Proposal in response to this RFP, the Proposer accepts the evaluation process and acknowledges and accepts that determination of the best value Proposer will require subjective judgments by Texas Tech.

- 3.5.10.2 Texas Tech reserves the right to consider any Proposal “non-responsive” if the Base Proposal Cost is determined to be unreasonable or irresponsible in relation to the other submitted Proposals and/or Texas Tech’s estimate of the construction cost.
- 3.5.11 Freedom of Access and Use of Facilities
 - 3.5.11.1 Contractor’s employees shall have reasonable and free access to use only those facilities of Texas Tech that are necessary to perform services under a resulting Contract and shall have no right of access to any other facilities of Texas Tech.
- 3.5.12 Governing Law
 - 3.5.12.1 This RFP, and any resulting Contract, agreement or purchase order shall be construed and governed by the laws of the State of Texas.
 - 3.5.12.2 Federal Funds: All procurements of supplies equipment, and services utilizing Federal Funds (e.g. Federal Grant or Contract) shall be made in accordance with all applicable federal rules and regulations: Federal Acquisition Regulations (FAR), Federal Office of Management and Budget (OMB) Educational Institutions, even if part of a State or local government follow: OMB A-21 for cost principles, A-110 for administrative requirements, and A-133 for audit requirements. All procurement requirements contained in the above referenced circulars are incorporated herein by reference. By signing this solicitation document, vendor certifies that vendor is in compliance with OMB A-110 and that vendor is not on the Debarred Bidders List.
- 3.5.13 Health and Safety Code Chapter 161
 - 3.5.13.1 If applicable, Contractor affirmatively states that it will comply with the requirements of Texas Health and Safety Code, § 161.0085(c).
- 3.5.14 No Prohibited Boycott
 - 3.5.14.1 If applicable to this Contract, Contractor agrees not to engage in any boycott prohibited by Texas Government Code §§ 2271.002, 2274.001.
- 3.5.15 Non-Disclosure
 - 3.5.15.1 Contractor and Texas Tech acknowledge that they or their employees may, in the performance of the resultant Contract, come into the possession of proprietary or confidential information owned by or in the possession of the other. Neither party shall use any such information for its own benefit or make such information available to any person, firm, corporation, or other organization, regardless of whether directly or indirectly affiliated with Contractor or Owner, unless (1) required by law, (2) required by order of any court or tribunal, (3) such disclosure is necessary for the assertion of a right, or defense of an assertion of a right, by one party against the other party hereto, or (4) such information has been acquired from other sources.
- 3.5.16 Patent and Copyright
 - 3.5.16.1 Contractor shall pay for any royalties, license fees, copyrights or trade and service marks required to perform the services required by any resulting Contract.
- 3.5.17 Sales and Use Taxes
 - 3.5.17.1 Section 151.311, Tax Code permits the purchase free of state sales and use taxes of tangible personal property to be incorporated into realty in the performance of a contract for an improvement to realty for certain exempt entities that include the Texas Tech. The section further permits the purchase tax-free of tangible personal property (other

than machinery or equipment and its accessories and repair and replacement parts) for use in the performance of such a contract if the property is “necessary and essential for the performance of the contract” and “completely consumed at the job site.” In addition, the section permits the purchase tax-free of a tangible service for use in the performance of such a contract if the service is performed at the job site and if “the contract expressly requires the specific service to be provided or purchased by the person performing the contract” or “the service is integral to the performance of the contract.”

3.5.18 Certification of Franchise Tax Status

- 3.5.18.1 Proposers are advised that the successful Proposer will be required to submit certification of franchise tax status as required by State Law (H.B. 175, Acts 70th Leg. R.S., 1987, Ch. 283, p. 3242). The Proposer further agrees that each Subcontractor and supplier under contract will also provide a certification of franchise tax status.

3.5.19 Section Headings

- 3.5.19.1 All section headings are for convenience of reference only and are not intended to define or limit the scope of any provisions of this RFP.

3.5.20 Sex Offender Registration

- 3.5.20.1 The Contractor agrees to provide the notice required by Article 3 of Texas Tech’s current adopted Uniform General Conditions and Supplementary General Conditions (UGSC).

3.5.21 Software Requirements

- 3.5.21.1 Texas Tech requires use of two (2) construction management software platforms: Trimble Unity Construct (formerly e-Builder) and Bluebeam Revu.

- 3.5.21.2 The selected Contractor will be required to pay for the licenses they deem appropriate for this project.

3.5.21.2.1 Texas Tech will reimburse for up to three (3) Trimble Unity Construct (formerly e-Builder) licenses.

3.5.21.2.2 Texas Tech will not reimburse for Bluebeam Revu subscription plans or any additional software platforms not required under this agreement.

3.5.21.3 Project Web Requirements

3.5.21.3.1 This Project will utilize project management tools called Trimble Unity Construct (formerly e-Builder) and Bluebeam Revu. These applications are collaboration tools, which allow all Project team members continuous access through the internet and cloud-based platforms to important Project data as well as RTMP (real-time messaging protocol) Project status information.

3.5.21.3.2 The Contractor and subconsultants shall conduct Project controls outlined by Texas Tech utilizing Trimble Unity Construct (formerly e-Builder) and Bluebeam Revu.

3.5.21.3.2.1 These designated applications will be provided by the Contractor to the subconsultants.

3.5.21.3.2.2 No additional software will be required.

- 3.5.21.3.3 The Program Director will coordinate with appropriate Texas Tech personnel to assist the Contractor in training its consultants' personnel on the use of Trimble Unity Construct (formerly e-Builder) and Bluebeam Revu.
- 3.5.21.3.4 The Contractor will be responsible for uploading the most current documents into Trimble Unity Construct (formerly e-Builder) and Bluebeam Revu Project on a daily basis, or as plans are changed.
- 3.5.21.3.5 Contractor and subconsultants shall be responsible for visiting the Trimble Unity Construct (formerly e-Builder) Project website on a daily basis, and as necessary to remain fully apprised of Project developments, correspondence, assigned tasks and other construction related matters.
 - 3.5.21.3.5.1 These may include but are not limited to: Agreements, Agreement Exhibits, Agreement Amendments, Drawing issuances, Addenda, bulletins, permits, insurance and bonds, safety program procedures, safety notices, accident reports, personnel injury reports, schedules, site logistics, progress reports, daily logs, non-conformance notices, quality control notices, Punchlists, meeting minutes, Requests for Information, submittal packages, substitution requests, Monthly Payment Request Applications, supplemental instructions, Owner Variation Directives, potential Variation Orders, Variation Order Requests, Variation Orders, and the like.
 - 3.5.21.3.5.2 All supporting data including but not limited to Shop Drawings, product data sheets, manufacturer data sheets and instructions, method statements, safety SDS sheets, substitution requests and the like will be submitted in digital format via Trimble Unity Construct (formerly e-Builder).
- 3.5.21.4 Electronic File Requirements:
 - 3.5.21.4.1 In addition to the standard Close Out submittal requirements detailed elsewhere in the Agreement, the Front Ends, UGSCs, and the Construction Documents, the Contractor and subconsultants shall also submit all Close Out Documents including all "As-Built," product data and Owner's Operation and Maintenance manuals in digital format.
 - 3.5.21.4.2 All documents (including As-Built drawings) shall be converted into PDF file format and uploaded to Trimble Unity Construct (formerly e-Builder) as per Texas Tech processes and operational requirements.
- 3.5.22 U.S. Government Contractor
 - 3.5.22.1 Texas Tech serves from time to time as a Contractor for the United States Government. Accordingly, if the Contractor provides goods or services in connection with such contracts, it shall comply with Federal laws, rules, and regulations applicable to Subcontractors of government contracts.
- 3.5.23 Pursuant to Executive Order No GA-48, Contractor certifies that it, and, if applicable, its holding companies or subsidiaries, are not:

- 3.5.23.1 Listed in Section 889 of the 2019 National Defense Authorization Act (NDAA); or
- 3.5.23.2 Listed in Section 1260H of the 2021 NDAA; or
- 3.5.23.3 Owned by the government of a country on the U.S. Department of Commerce's foreign adversaries list under 15 C.F.R. § 791.4; or
- 3.5.23.4 Controlled by any governing or regulatory body located in a country on the U.S. Department of Commerce's foreign adversaries list under 15 C.F.R. § 791.4.

SECTION 4. PROPOSAL REQUIREMENTS

All Proposers responding to this RFP must submit complete responses to the information requested in this RFP and note any exceptions to any information contained in the RFP. Texas Tech reserves the right to request additional information from responsible companies. Proposals will be evaluated based upon the selection criteria listed in this RFP. Texas Tech will select those Proposers that offer the best value, based on the selection criteria in this Request for Proposals and any interviews conducted. Limit your Proposal to a maximum of fifty (50) digital pages exclusive of cover page, Table of Contents, Proposal Form, Proposer's Execution of Offer, Project lists (from Article 4.1.6), and HUB information. Proposers should present the information below in the following order:

4.1 Contractor Experience

- 4.1.1 Information on the Contractor including a brief history of the Contractor, information about the Contractor's Principals, the services offered, the number and type of staff members, and business volume for the past five (5) years. If the Contractor has several branch offices, also highlight the information of the office that will manage the Texas Tech Project.
- 4.1.2 Name, telephone, address, and email of the Project Principal and the individual designated to receive all Request for Proposals information, Addenda or any other official correspondence relating to the Project.
- 4.1.3 List any other companies that will be used to provide such services as estimating, Value Engineering analysis, scheduling, or computer services.
- 4.1.4 If a joint venture, list similar information for each Contractor and the rationale for the joint venture, previous similar experience as a joint venture, and a summary of the joint venture agreement indicating the roles and responsibilities of each party in the joint venture.
- 4.1.5 Briefly discuss five (5) projects that were performed by the Contractor's office managing this Project or individual team members that will be performing on this Project, that best represent the Contractor's ability to successfully manage this Project to completion, on time and within budget. As a minimum, for each project, provide a brief description, current client reference information (including names, email addresses, and current phone numbers), dates services performed, specific services the Contractor provided, size of the project, construction delivery approach, project budget at award, and project costs at completion.
- 4.1.6 Provide a list of all Higher Education projects undertaken within the last five (5) years. For each project, include the name of the project, a brief synopsis of the project, current client reference information (including names, email addresses, and current phone numbers), the dates services were provided, the type of project, the construction delivery method, the project budget, and the project costs at completion. If the Contractor has several branch offices, highlight those projects on the list managed by the office that will manage this Texas Tech Project.

4.2 Project Team Member Information

- 4.2.1 Provide a project management chart that identifies all key staff members and provides a brief description that outlines each person's individual roles and responsibilities, relevant experience, and shows how each interacts with other staff members, Texas Tech, and the Design Professional.
- 4.2.2 Submit personnel qualifications for all members of the Project Team specific to this Project, which include title, educational background, professional licenses/trade certifications, relevant construction experience, work history, length of service with the Contractor, and current client reference information (including names, email addresses, and current phone numbers). Provide a list of projects worked on and the individuals' role on the projects.
- 4.2.3 Selection of the successful Contractor will be based, in part, on specific members of your proposed team. Include a statement indicating the Contractor's commitment to maintaining the proposed staffing plan throughout the Project. Contractor must have written approval from Texas Tech to change any member of the team.
- 4.2.4 Indicate the scopes of the Work that the Contractor has the capability to self-perform, if any.

4.3 Additional Information

- 4.3.1 Describe the Contractor's QA/QC plan.
 - 4.3.1.1 List the responsible individual(s).
 - 4.3.1.2 Explain how the Contractor will coordinate the construction schedule with submittals, samples, and mock-up approvals of the Work to eliminate rework, unnecessary costs, maintain schedule, and deliver the Project in budget.
 - 4.3.1.3 Provide the Contractor's processes and/or procedures to ensure QA/QC for material deliveries, material acceptance, material installation, and acceptance testing.
- 4.3.2 Describe the Contractor's Safety and Health Program.
- 4.3.3 Provide a record, including dates of claims and/or litigation involving Owners and/or Design Professionals for the past five (5) years.
- 4.3.4 Provide an explanation of Contractor's experience with external third-party audit firms.
 - 4.3.4.1 Provide a list of audit firms the Contractor has dealt with or is currently dealing with.
- 4.3.5 Furnish the Contractor's Experience Modification Ratings (EMR) for the past five (5) years.
- 4.3.6 Prepare and submit, as an additional attachment, a list of all subcontractors included in this Proposal by CSI Division.
- 4.3.7 Provide any other information the Contractor believes will be helpful in making the selection.

4.4 Additional Items Not Included in the Request For Proposals

- 4.4.1 Include a list of those items that the Contractor believes are not a part of their Proposal but might typically be assumed by Texas Tech to be included in a Project of this type.
- 4.4.2 List any exceptions taken to the RFP.

4.5 Schedule

- 4.5.1 Provide a CPM Schedule. Include, but not limited to mobilization, subcontract execution, submittals, construction, Commissioning/TAB, Substantial Completion, training, punch list, FFE installation, and demobilization.

4.6 Performance And Payment Bonds

- 4.6.1 Provide performance and payment bonds.
 - 4.6.1.1 List the name of the surety.
 - 4.6.1.2 Indicate if the surety participates in bond dividends.
 - 4.6.1.3 Specify if bond dividends will be returned to Texas Tech.
 - 4.6.1.4 Note if Subcontractors will be required to purchase performance and payment bonds.
 - 4.6.1.5 Stipulate if Contractor is purchasing Subcontractor bond insurance and specify the rate.

4.7 Security/Bid Bond

- 4.7.1 Provide a security/bid bond as part of this RFP submission.
 - 4.7.1.1 The Security/Bid Bond is be bound unto Texas Tech University System, its component institutions and related entities, and all persons in privity with them including officers, employees, appointees, regents, administration, faculty, agents, or representatives in the sum of five percent (5%) of the maximum possible sum of the Base Proposal cost plus the Alternates costs listed on the Proposal Form.
 - 4.7.1.2 In addition, the Contractor must provide, within ten (10) days, a Payment, and Performance Bond for the then amount of the actual executed Contract amount, naming Texas Tech University System, Texas Tech University Health Sciences Center, the Texas Tech University Board of Regents, and officers, employees, agents, or representatives thereof as the obligee.

4.8 HUB Subcontracting Plan (HSP)

- 4.8.1 It is the policy of the State of Texas and Texas Tech to encourage the use of Historically Underutilized Businesses (HUBs) in its prime Contractors, Subcontractors, and purchasing transactions. The goal of the HUB program is to promote equal access and equal opportunity in Texas Tech contracting and purchasing.
- 4.8.2 In accordance with Texas Government Code 2161.252, Texas Tech declares that this solicitation does have a probability of subcontracting opportunities.
- 4.8.3 All Proposers must prepare and submit a detailed, complete, and comprehensive HUB Subcontracting Plan (HSP) in compliance with Historically Underutilized Business section of the Request for Proposals (RFP). Failure to submit a comprehensive, acceptable HUB Subcontracting Plan will be considered a material failure to comply with the requirements of the RFP and will result in rejection of the response. For the most current HUB Subcontracting Plan (HSP), go to: <http://comptroller.texas.gov/procurement/prog/hub/hub-subcontracting-plan/>.
- 4.8.3.1 As part of the Proposal, a listing of all Subcontractors by trade is required and shown in the HSP (see document at link above), even if mentioned elsewhere in the submittal package. The selected Subcontractors listed in the HSP shall match those listed and qualified in the Proposal Form.
- 4.8.4 In addition, all major Subcontractors, and suppliers (those whose Agreements are expected to exceed \$100,000) will also be required to submit a HUB Subcontracting Plan as part of the Proposal.
- 4.8.5 In accordance with 34 TAC §20.285(d)(1)(D)(iii), a Proposer may demonstrate good faith effort to utilize Texas certified HUBs for its subcontracting opportunities if the total value of the

Proposer's subcontracts with Texas certified HUBs meets or exceeds the statewide HUB goal or the agency specific HUB goal, whichever is higher.

- 4.8.5.1 When a Proposer uses this method to demonstrate good faith effort, the Proposer must identify the HUBs with which it will subcontract. If using existing contracts with Texas certified HUBs to satisfy this requirement, only contracts that have been in place for five (5) years or less shall qualify for meeting the HUB goal.
- 4.8.6 The Contractor will maintain business records documenting compliance with its HUB Subcontracting Plan (HSP) and will submit the HUB Subcontracting Plan Prime Contractor Assessment Report (PAR) with each Application for Payment.
 - 4.8.6.1 The HUB Subcontracting Plan Prime Contractor Assessment Report submission will be required as a condition for payment.
- 4.8.7 The Contractor shall further comply with its HUB Subcontracting Plan utilization percentage proposed in its Proposal to Texas Tech's Request for Competitive Sealed Proposal. If there are any changes to the utilization percentage during the term of the Agreement, a revised HUB Subcontracting Plan must be submitted for approval by the Contract Administrator/HUB Coordinator.
- 4.8.8 The Contractor will comply with Texas Government Code, Chapter 2161. If a determination is made that the Contractor has failed to implement the HUB Subcontracting Plan in good faith, Texas Tech, in addition to any other remedies it may have, may report nonperformance to the comptroller in accordance with 34 TAC §20.105 (relating to Debarment) and 34 TAC §20.106 (relating to Procedures for Investigations and Debarment).
- 4.8.9 In addition, if the Contractor fails to implement its HUB Subcontracting Plan in good faith, Texas Tech may revoke the Agreement for breach of Contract and make a claim against the Contractor.
- 4.8.10 Failure to submit a concise, detailed, and acceptable Hub Subcontracting Plan will be considered a material failure to comply with the requirements of the RFP and will result in rejection of the Proposal.

4.9 HUB Contracting Commitment

- 4.9.1 In addition to, and distinct from, any good faith effort required by Texas law, the General Contractor will be required to commit to performing a specific percentage of the Work using certified HUB firms.
- 4.9.2 The Contractor must state its HUB Contracting Commitment percentage in this Proposal.
 - 4.9.2.1 Indicate the Proposer's commitment to the amount of work, as a percentage of the Total Agreement Amount, performed by certified HUB firms including work your firm will self-perform if it is a certified HUB firm.
- 4.9.3 The State of Texas annual utilization goal for Building Construction procurement category is **21.1%**.
 - 4.9.3.1 For the Texas statewide HUB Annual Utilization Goals, "HUB Goals", by procurement category for the state agencies and state universities, go to:
<https://comptroller.texas.gov/purchasing/vendor/hub/disparity/#goals>.

SECTION 5. CSP EVALUATION CRITERIA

5.1 Evaluation and Ranking Procedures

- 5.1.1 Texas Tech will select the Proposer that offers the best value based on the published selection criteria and demonstrates expertise and competency in constructing high quality facilities, meeting, or exceeding program requirements, on time and within budget.
- 5.1.2 The selection will be based on the information contained in the Proposal, responses from reference checks, personal knowledge of past performance, and the information presented during any interviews conducted as part of the selection process.
 - 5.1.2.1 Texas Tech may make such inquiries as it deems necessary to determine the ability of the Proposer to perform all the Work. The Proposers shall furnish to Texas Tech all such information and data for this purpose as Texas Tech may request. Texas Tech reserves the right to reject any Proposal if the qualifications submitted by or the inquiries prove the Proposer not qualified to properly execute the Work, the Proposer fails to satisfy Texas Tech that the Proposer is properly qualified to carry out the obligations of the contract and to complete the Work.
- 5.1.3 Specifically, the Selection Committee will review and consider the following criteria listed in order of importance (the first being the highest importance):
 - 5.1.3.1 Contractor's Base Proposal amount;
 - 5.1.3.2 The qualifications of the Contractor's proposed Project Team, including demonstrated ability to function as a member of a high-performance team, relevant project experience, references, and to successfully deliver a project on time and within budget.
 - 5.1.3.3 Contractor's relevant experience as it relates to this Project and location.
 - 5.1.3.4 Contractor's overall evaluation.
 - 5.1.3.5 Contractor's experience at successfully delivering higher education projects.
 - 5.1.3.6 Contractor's proposed team performance based on references and past experiences.
- 5.1.4 Contractor's estimated construction duration and Project schedule (include types of schedules, look aheads, updates, etc.).
 - 5.1.4.1 This should include a baseline Critical Path schedule and estimated construction duration in months to achieve Substantial Completion.
- 5.1.5 Contractor's Quality Assurance Plan.
- 5.1.6 Contractor's Proposal content, quality, comprehensiveness, and/or presentation.
- 5.1.7 If an interview is given by the Contractor, evaluate the Project team's presence, compatibility, and question and answer session with the Selection Committee.
- 5.1.8 Contractor's safety and health program.
- 5.1.9 Contractor's Records of Claims and Litigation.
- 5.1.10 Contractor's Experience Modification Rating (EMR).

5.2 Evaluation and Award Process

- 5.2.1 Proposals will be opened publicly and read aloud the names of the Proposers and, if any are required to be stated, all prices in each proposal per Texas Education Code Section 51.783 after

confirmation of receipt of the required HUB Subcontracting Plan. Other contents of the Proposals will be afforded confidentiality sufficient to preclude disclosure of the contents of the Proposal prior to award or rejection action.

- 5.2.2 Proposals will be evaluated by Texas Tech.
- 5.2.3 Within forty-five (45) calendar days after opening the Proposals, Texas Tech will evaluate and rank each Proposal with respect to the published selection criteria described under Section 5.1.
- 5.2.4 Texas Tech may make an award on the basis of the initially submitted Proposal. At its sole discretion, Texas Tech may interview any Proposer and discuss cost, schedule, and/or all other elements of the Proposal.
- 5.2.5 If Texas Tech determines that it is unable to reach a satisfactory agreement with the first ranked Proposer, Texas Tech will terminate negotiations with that Proposer. Texas Tech will then proceed with negotiations with each successive Proposer as they appear in the order of ranking until an agreement is reached, or until Texas Tech has rejected all Proposals. After termination of discussions with any Proposer, Texas Tech will not resume discussions with that Proposer.
- 5.2.6 Immediately following Texas Tech's award of an Agreement or rejection of all Proposals, the Proposers will be notified via email by the Sr. Program Director.
- 5.2.7 Texas Tech reserves the right to accept or reject any or all alternates or to accept any combination of alternates considered advantageous to Texas Tech.
- 5.2.8 The award or rejection action regarding this Proposal is at the sole discretion of Texas Tech and Texas Tech makes no warranty regarding this Proposal that an Agreement will be awarded to any Proposer.
- 5.2.9 Texas Tech agrees that if the Agreement is awarded, it will be awarded to the Contractor offering the best value to Texas Tech, based upon the published selection criteria and upon its ranking evaluation. Texas Tech is not bound to accept the lowest priced Proposal if that Proposal is judged not to be the best value for Texas Tech, as determined by Texas Tech.

5.3 Procurement Process

- 5.3.1 This RFP complies with all state rules and Texas Tech University System policies. Address any questions and/or concerns about the process or awards made from it to:

Mr. Billy Breedlove
Vice Chancellor
Facilities Planning and Construction
Texas Tech University System
Phone: (806) 742-2116

SECTION 6. PROPOSER'S EXECUTION OF OFFER

TTUHSC Preston Smith Library 2nd Floor Renovation Project #25-04

Texas Tech University System

- 6.1 THIS EXECUTION OF OFFER MUST BE COMPLETED, SIGNED, AND RETURNED WITH PROPOSER'S PROPOSAL. FAILURE TO COMPLETE, SIGN AND RETURN THIS EXECUTION OF OFFER WITH THE PROPOSAL WILL SUBJECT THE SUBMITTAL TO DISQUALIFICATION.
- 6.2 SIGNING A FALSE STATEMENT MAY VOID THE SUBMITTED PROPOSAL OR ANY AGREEMENTS OR OTHER CONTRACTUAL ARRANGEMENTS, WHICH MAY RESULT FROM THE SUBMISSION OF PROPOSER'S PROPOSAL, AND THE PROPOSER MAY BE REMOVED FROM ALL PROPOSER LISTS AT TEXAS TECH. A FALSE CERTIFICATION SHALL BE DEEMED A MATERIAL BREACH OF CONTRACT AND, AT TEXAS TECH'S OPTION, MAY RESULT IN TERMINATION OF ANY RESULTING CONTRACT OR PURCHASE ORDER.
- 6.3 By signature hereon, Proposer acknowledges and agrees that (1) this Request for Competitive Sealed Proposal for construction services is a solicitation for proposal and is not a contract or an offer to contract; (2) the submission of a proposal by Proposer in response to this Request for Competitive Sealed Proposal will not create a contract between Texas Tech and Proposer; (3) Texas Tech has made no representation or warranty, written or oral, that one or more contracts with Texas Tech will be awarded under this Request for Competitive Sealed Proposal; and (4) Proposer shall bear, as its sole risk and responsibility, any cost which arises from Proposer's preparation of a Proposal to this Request for Competitive Sealed Proposal.
- 6.4 By signature hereon, Proposer offers and agrees to furnish to Texas Tech the products and/or services more particularly described in its Proposal, at the at the prices quoted in the Proposal, and to comply with all terms, conditions and requirements set forth in the Request for Competitive Sealed Proposal documents and contained herein.
- 6.5 By signature hereon, Proposer affirms that the Proposer has not given, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the submitted proposal.
- 6.6 By signature hereon, a corporate Proposer certifies that it is not currently delinquent in the payment of any Franchise Taxes due under Chapter 171, Texas Tax Code, or that the corporate Proposer is exempt from the payment of such taxes, or that the corporate Proposer is an out-of-state corporation that is not subject to the Texas Franchise Tax, whichever is applicable.
- 6.7 By signature hereon, the Proposer hereby certifies that neither the Proposer nor the firm, corporation, partnership, or institution represented by the Proposer, or anyone acting for such firm, corporation, or institution has violated the antitrust laws of the State of Texas, codified in Section 15.01, et. seq., Texas Business and Commerce Code, or the Federal antitrust laws, nor communicated directly or indirectly the proposal made to any competitor or any other person engaged in such line of business.
- 6.8 By signature hereon, Proposer represents and warrants that:
 - 6.8.1 Proposer is a reputable company regularly engaged in providing products and/or services necessary to meet the terms, conditions, and requirements of the Request for Competitive Sealed Proposal;
 - 6.8.2 Proposer has the necessary experience, knowledge, abilities, skills, and resources to satisfactorily perform the terms, conditions, and requirements of the Request for Competitive Sealed Proposal;

- 6.8.3 Proposer is aware of, is fully informed about, and is in full compliance with all applicable federal, state, and local laws, rules, regulations, and ordinances;
- 6.8.4 Proposer understands (1) the requirements and specifications set forth in this Request for Competitive Sealed Proposal and (2) the terms and conditions set forth in the Contract Documents under which Proposer will be required to operate;
- 6.8.5 Proposer, if selected by Texas Tech, will maintain insurance as required by the Contract Documents;
- 6.8.6 All statements, information and representations prepared and submitted in response to this Request for Competitive Sealed Proposal are current, complete, true, and accurate. Proposer acknowledges that Texas Tech will rely on such statements, information, and representations in selecting the Successful Proposer. If selected by Texas Tech as the Successful Proposer, Proposer will notify Texas Tech immediately of any material change in any matters with regard to which Proposer has made a statement or representation or provided information.
- 6.9 By signature hereon, Proposer certifies that the individual signing this document, and the documents made part of the Request for Competitive Sealed Proposal is authorized to sign such documents on behalf of the company and to bind the company under any agreements or other contractual arrangements, which may result from the submission of Proposer's proposal.
- 6.10 By signature hereon, Proposer certifies that if a Texas address is shown as the address of the Proposer, Proposer qualifies as a Texas Resident Proposer as defined in 34 TAC 20.32(68).
- 6.11 By signature hereon, Proposer certifies as follows:
 - 6.11.1 "Under Section 231.006 (Ineligibility to Receive State Grants or Loans or Receive Payment on State Contracts), Family Code, the vendor or applicant certifies that the individual or business entity named in this contract, bid, or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this contract may be terminated, and payment may be withheld if this certification is inaccurate."
 - 6.11.2 "Under Section 2155.004, Texas Government Code, the vendor or applicant certifies that the individual or business entity named in this bid or contract is not ineligible to receive the specified contract and acknowledges that this contract may be terminated, and payment withheld if this certification is inaccurate."
 - 6.11.3 Under Section 2254.004, Texas Government Code, Proposer affirms that no compensation has been received for participation in the preparation of the specifications for this Request for Competitive Sealed Proposal.
- 6.12 By signature hereon, Proposer certifies that no relationship, whether by relative, business associate, capital funding agreement or by any other such kinship exist between Proposer and an employee of any Texas Tech component, or Proposer has not been an employee of any Texas Tech component within the immediate twelve (12) months prior to Request For Competitive Sealed Proposal response. All such disclosures will be subject to administrative review and approval prior to Texas Tech entering into any contract with Proposer.
- 6.13 Proposer represents and warrants that all articles and services quoted in response to this Request For Competitive Sealed Proposal meet or exceed the safety standards established and promulgated under the Federal Occupational Safety and Health Law (Public Law 91-596) and its regulations in effect or proposed as of the date of this solicitation.
- 6.14 By signature hereon, Proposer signifies his compliance with all federal laws and regulations pertaining to Equal Employment Opportunities and Affirmative Action.

- 6.15 By signature hereon, Proposer agrees to defend, indemnify, and hold harmless the State of Texas, all of its officers, agents and employees from and against all claims, actions, suits, demands, proceedings, costs, damages, and liabilities, arising out of, connected with, or resulting from any acts or omissions of Proposer or any agent, employee, Subcontractor, or supplier of Proposer in the execution or performance of any agreements or other contractual arrangements which may result from the submission of Proposer's proposal.
- 6.16 By signature hereon, Proposer agrees that any payments that may become due under any agreement or other contractual arrangements which may result from the submission of Proposer's proposal will be applied towards any debt including, but not limited to, delinquent taxes and child support that is owed to the State of Texas.
- 6.17 By signature hereon, Proposer certifies that no member of the Board of Regents of Texas Tech or the Executive Officers of Texas Tech or its component institutions, has a financial interest, directly or indirectly, in the transaction that is the subject of the contract.
- 6.18 Proposers should give Payee ID Number, full firm name, and address of Proposer below in the space provided. The Payee ID Number is the taxpayer number assigned and used by the Texas Comptroller of Public Accounts. If this number is not known, complete the Federal Employer's Identification Number.

Complete the following:

Payee ID No. _____

If a Corporation

State of Incorporation: _____

FEI No. _____

Charter No. _____

Please identify by name each person who owns at least twenty five percent (25%) of Proposer's business entity:

Name

Name

Name

Name

Submitted by:

(Authorized Signature)

(Printed Name/Title)

(Date)

(Telephone Number)

(Street Address)

(City, State, Zip Code)

(Email Address)

SECTION 7. PROPOSAL FORM

TTUHSC Preston Smith Library - 2nd Floor Renovation Project #25-04

Texas Tech University System

Submission Date: _____

PROPOSAL submitted by:

Full Legal Name of Firm Responding: _____

Proposer Website address (if available): _____

Contact Email Address: _____

Street Address: _____

Mailing Address: _____

City, State, Zip Code: _____

Telephone Number: _____

Having carefully examined the ALL details of this Request for Competitive Sealed Proposals including but not limited to the Uniform General Conditions and Supplementary General Conditions (UGSC), Additional General Conditions, Texas Tech's Special Conditions, the Drawings and Specifications and all Addenda issued, as prepared by the Design Professional on this Project, as well as the Project premises and all the conditions affecting the work, the undersigned proposes to furnish all labor, materials, and equipment necessary to complete the entire work in accordance with the Contract Documents for the following sum. Dollar amounts for Base Proposal and all Alternates (if any) shall be shown in both written and numerical formats. In case of discrepancy between the written amount and the numerical amount, the written amount shall govern.

7.1 Base Proposal (Exclusive of alternate proposals.)

_____ and _____/100 Dollars
(Written Amount)

\$ _____
(Numerical)

7.2 Amounts Included in Base Proposal

7.2.1 The Proposer provides the following additional information. These amounts are included in the Base Proposal amount:

The Total Contract Sum includes the following amounts:

1) Owner Contingency Allowance included in Contract Sum: \$ _____

2) Dollar value of materials to be incorporated into the Work: \$ _____

3) Dollar value of labor and materials not incorporated in the Work: \$ _____

7.2.2 This separation of the Total Contract Sum into materials and labor is required in order for the successful Proposer to be able to purchase free of State sales tax the materials to be incorporated

into the Work. The successful Proposer will be required to submit similar information for any Alternates accepted by Texas Tech.

- 7.2.3 Provide a complete breakdown of the cost of the Work by CSI section.

7.3 Alternate Proposal Item(s)

- 7.3.1 The following prices are for Alternate Proposal item(s), as clearly and separately identified on the Drawings and/or in the Specifications. The Proposer shall clearly indicate if this price is to be added or deducted from the Base Proposal by writing "Add" or "Deduct" before the written price. The Proposer agrees to hold this price for a period of not less than sixty (60) days from the date of Agreement award. Do not include this time period in the construction duration included in this Proposal.

- 7.3.2 **Alternate No. 1: Level 2 Office Scope. Demolition and build back of extents as indicated on Architectural Drawings. Work is to be completed after completion of Level 2 base scope.**

_____ Dollars
(Written Amount)

\$ _____
(Numerical)

The above Alternate Proposal price is divided into:

- 1) Dollar value of materials to be incorporated into the Work: \$ _____
2) Dollar value of labor and materials not incorporated in the Work: \$ _____

- 7.3.3 **Alternate No. 2: Level 2 Collaboration Suites. Wall and door scope, in lieu of demountable partitions, to the extents indicated on Architectural drawings. Include electrical scope in alternate pricing.**

_____ Dollars
(Written Amount)

\$ _____
(Numerical)

The above Alternate Proposal price is divided into:

- 1) Dollar value of materials to be incorporated into the Work: \$ _____
2) Dollar value of labor and materials not incorporated in the Work: \$ _____

7.4 Unit Prices For Construction

- 7.4.1 The undersigned further agrees that in case additional Work or material is authorized from what is shown in the Contract Documents as originally awarded, the following items of unit prices will be used in adjusting the Contract Sum. The unit prices include overhead, profit, miscellaneous devices, appurtenances, and similar items incidental to or required for a complete installation whether or not mentioned as part of the Unit Price, etc. Unit prices to be used for adjusting the Contract Sum for more Work or less Work or material will be one hundred percent (100%) of these amounts.
- 7.4.2 If, after the Contract Sum is established and the Agreement signed, Texas Tech chooses to change the scope of the Work in an area described by the Unit Prices, the Unit Prices proposed on the

Proposal Form will prevail in establishing change order pricing. Said Amendment to the Agreement will be processed in the same manner as described elsewhere in this RFP. Payment to the Contractor cannot be guaranteed for any Work performed outside the Agreement which has not been formally added by an executed Agreement Amendment.

7.4.3 Unit Prices: None

7.5 Duration of Construction

7.5.1 The Proposer agrees to complete all Work shown in the Contract Documents for the Base Proposal within _____ consecutive calendar days from the date of Notice to Proceed.

7.6 Addenda

7.6.1 Receipt is hereby acknowledged of the following Addenda to this RFP. (Initial, if applicable.)

No. 1: _____ No. 2: _____ No. 3: _____ No. 4: _____ No. 5: _____ No. 6: _____

Dated: _____ Dated: _____ Dated: _____ Dated: _____ Dated: _____ Dated: _____

7.7 Experience Modification Ratio

7.7.1 The Proposer certifies that its current insurance Experience Modification Ratio is _____.

7.8 Subcontractor List

7.8.1 The Proposer shall prepare and submit, as an additional attachment, a list of all subcontractors included in this Proposal by CSI Division.

7.9 Hub Contracting Commitment

7.9.1 In addition to, and distinct from, any good faith effort required by Texas law, the Contractor commits to use certified HUB firms to perform Work valued at a minimum of _____% of the Total Contract Sum.

7.10 Liquidated Damages

7.10.1 Substantial Completion

7.10.1.1 For each consecutive calendar day after the date at which the Parties have contracted for Substantial Completion that Substantial Completion is not accomplished, taking into consideration any extensions of time granted by any Change Order, the Contractor shall pay to Texas Tech, within ten (10) days following written demand, the amount of:

One Thousand and 00/100 Dollars (\$1,000.00) per calendar day

not as a penalty but as Liquidated Damages representing the Parties' estimate at the time of Agreement execution of the damages that Texas Tech will sustain as a result of its inability to fully utilize the facilities due to late Substantial Completion of the Project and once paid shall represent Texas Tech's sole and exclusive remedy for late completion except as stated in Section 2 (additional expenses incurred due to late completion but not directly related to Texas Tech's inability to fully utilize the facilities).

7.10.1.2 Texas Tech may also recover Liquidated Damages from any money due or that becomes due to the Contractor.

7.10.2 Final Completion

- 7.10.2.1 The Parties recognize and acknowledge that despite access to the Project after achieving Substantial Completion, any delay in achieving Final Completion will cause inconvenience and/or disruption of use of the Project for Texas Tech.
- 7.10.2.2 For each consecutive calendar day after the completion of thirty (30) days from the date of Substantial Completion that Final Completion is not met, taking into account any extensions of time granted by any Amendment, Contractor shall pay or withhold to Texas Tech, within ten (10) days following written demand, the amount of:

Five Hundred and 00/100 Dollars (\$500.00) per calendar day

not as a penalty but as Liquidated Damages representing the Parties' estimate at the time of Agreement execution of the damages that Texas Tech will sustain as a result of its inability to fully utilize the facilities due to late Final Completion of the Project and once paid shall represent Texas Tech's sole and exclusive remedy for late completion except as stated in Section 2 (additional expenses incurred due to late completion but not directly related to Texas Tech's inability to fully utilize the facilities).

- 7.10.2.3 Texas Tech may also recover Liquidated Damages from any money due or that becomes due to the Contractor.

7.11 Submittal of Completed Contract Documents

- 7.11.1 The undersigned agrees, if awarded the Contract, to execute the Contract, Performance and Payment Bonds, Certificate of Insurance, and Certification of Franchise Tax Payment within TEN (10) CALENDAR DAYS after receipt of the contract and to commence Work on the commencement date stated by the Owner in a Notice to Proceed.

7.12 Proposal Letter of Bonding Capacity

- 7.12.1 Proposals totaling \$25,000.00 or more must include a letter from an approved Bonding Company indicating that the Proposer has bonding capacity equal to or exceeding the Maximum Possible Award (including consideration of additive alternates) of the Proposal submitted. The awarded Proposer shall promptly supply a Payment Bond as well as a Performance Bond if the Maximum Possible Award is over \$100,000.00 in the full amount of the awarded contract. The letter from the Bonding Company shall be submitted with the Proposal Form as stated in the RFP.

7.13 Determination Of Proposer's State Of Residence (Not required for a contract involving Federal Funds)

- 7.13.1 Each Proposer is required to complete this part of the Proposal. Failure to complete this part will constitute an incomplete Proposal, which may be rejected.
- 7.13.2 A "nonresident bidder" as defined hereafter will be awarded a contract only in compliance with Texas Government Code Section 2252.002 as quoted below:
 - 7.13.2.1 "A governmental entity may not award a governmental contract to a nonresident bidder unless the nonresident underbids the lowest bid submitted by a responsible resident bidder by an amount that is not less than the greater of the following:
 - (1) the state in which the nonresident's principal place of business is located; or
 - (2) a state in which the nonresident is a resident manufacturer."

- 7.13.3 A "nonresident bidder" (Texas Government Code 2252.001) refers to a person or entity that is not a resident of the State of Texas.
- 7.13.4 A "resident Proposer" (Texas Government Code 2252.001) refers to a person whose principal place of business is in the State of Texas, including a Contractor whose ultimate parent company or majority owner has its principal place of business in the State of Texas.
- 7.13.5 Each Proposer shall complete the information below on this part of this Proposal the Proposer's address of principal place of business and the name and address of the Proposer's ultimate parent company or majority owner, if applicable, and shall include with this Proposal a copy of the current statutes, providing such statutes exist, of the Proposer's State of residence, if other than Texas, with all data necessary for Texas Tech to determine the Proposer's state of residence and to calculate the Proposer's "nonresident bidder differential".
- 7.13.6 Proposer's name and address:

- 7.13.7 Ultimate parent company or majority owner's name and address:

- 7.13.8 Copies of nonresident State Statutes and other material attached:

Yes _____ No _____

The Proposer must complete, sign, and return this Proposal Form as part of their submittal response. The Proposer's company official(s) who are authorized to commit to such a submittal must sign submittals. Failure to sign and return this form will subject the submittal to disqualification.

Offer executed on behalf of Proposer

(Seal: If Proposal by a Corporation)

By: _____
Signature

Printed Full Name and Title

Full Name of President of Corporation or
Owner/Sole Proprietor of Non-Corporation

Full Name of Corporate Secretary

Complete applicable information:

A Corporation, chartered in the State of _____, authorized to do business in the State of Texas.

A partnership, composed of _____, and _____.

An individual, operating under the name of: _____.

A Limited Liability Company, composed of: _____.

A Joint Venture, operating under the name of: _____ and _____.

SECTION 8. ADDITIONAL REQUIRED INFORMATION

Additional information required in the RFP shall be provided with the Proposal (reference Section 4 Proposal Requirements). All information should be clearly marked with the firm's name, Project title and Project Number and formatted as stated in Section 2. Submit this information at the time and place indicated in Section 2 Proposal Information as modified by any Addenda issued.



HISTORICALLY UNDERUTILIZED BUSINESS (HUB) PROGRAM

****RESPONDENTS SHOULD READ THIS ENTIRE SECTION PRIOR TO PREPARING THEIR HUB SUBCONTRACTING PLAN****

PART 1. GENERAL

1.1 POLICY STATEMENT

- A. Texas Tech actively seeks the involvement of Historically Underutilized Businesses (minority-owned and woman-owned businesses) in its construction projects as providers of Professional Services, Construction Services, Supplies, Services and Materials. Further, Texas Tech will make a good faith effort to assist Historically Underutilized Businesses (HUBs) to achieve the percentages of the total value of each project shown below:
 - 11.2% for heavy construction other than building contracts;
 - 21.1% for all building construction;
 - 32.9% for all special trade construction contracts;
 - 23.7% for professional services contracts;
 - 26.0% for all other services contracts; and
 - 21.1% for commodities contracts.
- B. Texas Tech will carry out the HUB policies through race/ethnic and gender-neutral means, and make a good faith effort to achieve the annual program goals by identifying and utilizing HUBs in construction contracts, professional services, and commodities contracts.
- C. Accordingly, Texas Tech encourages qualified Historically Underutilized Businesses (HUBs) to submit responses. All Respondents are required to give particular attention in preparing their responses to include HUBs as subcontractors and material suppliers.
- D. Each Respondent shall enclose the applicable forms with its response, which will document and explain the Respondents' good faith effort to obtain services from HUB subcontractors and suppliers. The HUB Subcontracting Plan (HSP) forms can be found at [HUB Forms \(texas.gov\)](http://www2.cpa.state.tx.us/cmb/cmbhub.html).

1.2 DETERMINATION OF HUB SUBCONTRACTING OPPORTUNITIES

- A. Texas Tech has determined that subcontracting opportunities are expected under the proposed contract. As a result, all Respondents must submit a HUB Subcontracting Plan.
- B. Texas Tech has used existing historical information to identify the potential subcontracting opportunities, and will provide a list of possible HUB Firms from the Centralized Master Bidders List (CMBL). If you are retrieving this document from the Electronic State Business Daily you may obtain a list of HUB subcontractors from <http://www2.cpa.state.tx.us/cmb/cmbhub.html>. You may also request a printed list by calling the Program Director or Contract Administrator at (806) 742-2116.

1.3 HUB SUBCONTRACTING PLAN REQUIREMENTS

- A. Each Respondent, including HUB Firms, must submit a complete HUB Subcontracting Plan (HSP) with its response. Responses which do not contain a complete HSP will be rejected as non-responsive. Reasons for rejection will be recorded in the procurement file. Texas Tech may report non-performance relative to its contracts to the Texas Procurement and Support Services in

accordance with TAC 111.14, Chapter 113, Subchapter F (relating to Vendor Performance and Debarment Program.)

- B. If Respondents have not yet reached the point of soliciting bids or proposals from subcontractors or suppliers, the HSP must describe and document in detail exactly how the Respondent will identify and solicit HUBs and award to successful HUB Firms.
- C. The successful Respondent shall comply with the HSP. Any changes in the HSP will require prior written approval from Texas Tech. Approval will not unreasonably be withheld if one HUB is substituted for another.
- D. Texas Tech will require the successful Respondent to submit evidence of Certification for all Certified HUB Firms. This evidence must be submitted at the time of the contract award.
- E. During the term of the contract Texas Tech may audit compliance with the HSP and determine whether the value of the subcontracts to HUBs meets or exceeds the HUB subcontracting provisions specified in the contract and the HSP.
- F. If a Firm fails to fulfill the HUB Subcontracting Plan as specified in the contract, Texas Tech will notify the Firm of any deficiencies. Texas Tech will give the Firm an opportunity to submit documentation and explain the failure on the part of the Firm. Any deficiencies identified by Texas Tech must be rectified prior to submitting any further requests for payment.

1.4 CERTIFICATION

- A. All HUBs must be certified as such by the Texas Procurement and Support Services. HUBs not already certified may contact any of the below entities for information and assistance in becoming certified:
 1. Texas Procurement and Support Services, Austin, TX, at (512) 463-6363;
 2. State of Texas HUB Program, Austin, TX, at 1-800-863-5881;
 3. Office of Facilities Planning and Construction, Texas Tech University System, 1508 Knoxville Ave., Lubbock, Texas 79409-2014, at (806) 742-2116;
 4. Procurement Services, Texas Tech University, TTU Plaza, Suite 408, 1901 University Ave., Box 41094, Lubbock, Texas 79409-1094, at (806) 742-3844;
 5. Or Purchasing, Texas Tech University Health Sciences Center, 3601 4th St., Box 9021, Lubbock, Texas 79430-9021, (806) 743-7841.
- B. Additional information on becoming certified and necessary electronic application forms is available at <http://www.window.state.tx.us/procurement>. Respondents are encouraged to contact non-certified, HUB eligible firms and provide them with information on becoming certified.

END OF SECTION

Agreement Number: [Enter number]

Texas Tech University System

Competitive Sealed Proposal Construction Services Agreement

BETWEEN

The Board of Regents of The Texas Tech University System
City of Lubbock, Lubbock County, Texas, 79409
("Texas Tech")

Acting herein by and through the Chancellor
of the
Texas Tech University System
or his designated representative

And

[Firm Name]
[A (Type of Entity and State)]
[Address]
[City, State Zip Code]
(The "Contractor")

Regarding

[Project Name]
FP&C Project Number [XX-XX]
[Institution]
[City], Texas
(The "Project")

This Agreement becomes effective on the date of the last signature on the Agreement.

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Background

Texas Tech intends to retain a Contractor to provide Construction Services, and the Contractor commits to provide the services pursuant to the terms of this Agreement.

In choosing to retain the Contractor under this Agreement, Texas Tech is materially relying on the Contractor's representations as a licensed Contractor fully qualified to perform construction services to furnish all of the materials, equipment, tools, and labor as necessary and reasonable to complete the work at the Project as depicted in the Contract Documents).

For adequate consideration accepted, the Parties agree as follows:

Article 1. Definitions

- 1.1 *Supplementary Definitions.* Capitalized terms are as defined in the current adopted Uniform General Conditions and Supplemental General Conditions (UGSC), except for the following (references in this Agreement to the current adopted Uniform General Conditions and Supplemental General Conditions).
- 1.2 *Agreement.* Means the contract between Texas Tech and the Contractor that is part of the Contract Documents.
- 1.3 *Contract.* Means the entire Agreement between Owner and the Contractor, including all Contract Documents.
- 1.4 *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.
- 1.5 *General Conditions Work.* Work performed by On-Site management and administrative personnel and all related insurance, bonds, equipment, utilities, and incidental work, including cleaning, materials handling, and minor field labor and materials.
- 1.6 *Insurance Coverage Requirement.* All requirements for insurance coverage to be furnished by the Contractor as set forth in Article 11 of this Agreement and Article 5 of the UGSC and the Special Conditions, if any, with the requirements in the Special Conditions controlling in the event of any conflict with the other requirements.
- 1.7 *Parties.* Collectively, Texas Tech and the Contractor are the "Parties;" individually, each is a "Party."
- 1.8 *Project Team.* The Texas Tech client, Facilities Planning and Construction (FP&C), external third-party auditor(s), and other representatives, Texas Tech's Construction Manager-Agent (if applicable), Contractor, Design Professional(s), any separate representatives employed by Texas Tech, and other consultants employed for the purpose of programming, design, and construction of the Project. The Project Team may vary at different phases of the Project. The Project Team will be approved by Texas Tech and may be modified in writing from time to time by Texas Tech.
- 1.9 *Related Party.* A subsidiary, parent company, or other affiliate of the Contractor.
- 1.10 *Value Engineering (VE).* A systematic method to improve the "best value" of design, goods or products, processes, and services by using an examination of function. Value, as defined, is the ratio of function to cost.

- 1.11 *Work*. The provision of all construction services, labor, materials, supplies, and equipment that are required of Contractor to complete the Project in strict accordance with the requirements the Contract Documents. Work includes, but is not limited to, all scope defined in the Contract Documents, additional Work required by Change Orders, and any other Work reasonably inferable from this Agreement. The term “reasonably inferable” takes into consideration the understanding of the Parties that some details necessary for completion of the Work may not be shown on the Drawings or included in the Specifications, but they are a requirement of the Work if they are a usual and customary component of the Work or otherwise necessary for complete installation and operation of the Work.

Article 2. Scope of the Work

- 2.1 The Contractor shall perform all Work required by the Contract Documents and as defined under this Agreement and the Texas Tech current adopted Uniform General Conditions and Supplementary General Conditions for Construction Contracts referred to herein as the Uniform General and Supplementary Conditions (UGSC) which are incorporated by this reference. The Contractor is responsible for and should be aware of all terms and conditions of the Uniform General and Supplementary Conditions. To the extent any term in this Agreement conflicts with the Uniform General Conditions and the Supplementary General Conditions, the terms of this Agreement prevail.
- 2.2 Texas Tech intends to enter brief PROJECT DESCRIPTION, including all major elements of the Work. Attachment A, incorporated by reference herein, lists the Construction Specifications and Drawings that describe the Project scope of the Work.
- 2.3 Furthermore, Texas Tech accepts the following Alternate(s) from the Contractor’s Request for Competitive Sealed Proposal and includes these Alternates in the scope of the Work:
[Select None or Add Alternate Number, Description – Alternate Amount]
- 2.4 Allowance(s) means a fixed sum for a specific portion of the Work used when the exact character or quality of an element of the Work is not known. The Contractor shall include in the Contract Sum all Allowances stated in the Contract Documents. Unless otherwise provided in the Contract Documents (1) Allowances shall cover the cost to the Contractor of materials and equipment delivered at the Site and all required taxes, less applicable trade discounts; (2) Contractor’s costs for unloading and handling at the Site, labor, installation costs, overhead, profit and other expenses contemplated for stated Allowance amounts shall be included in the Contract Sum but not in the Allowances; and (3) whenever costs are more than or less than Allowances, the Contract Sum shall be adjusted accordingly by Change Order. Any unused Allowance will be required to be moved to Owner’s Contingency.
- 2.5 Owner’s Contingency means an amount, if any, that is included in the Base Proposal for authorizing additional Work in connection with the Project. The use thereof requires the written approval or directive of the Owner’s Designated Representative (ODR) by Change Order or Change Directive. Any unused amount from the Owner’s Contingency will be returned to the Owner.
- 2.6 The Contractor has overall responsibility for and shall provide and furnish the labor, materials, equipment, services, and supervision to perform and complete all the Work, or any phase of the Work, in accordance with the Texas Tech’s requirements and the terms of the Contract Documents.
- 2.7 The Contractor’s services under this Agreement shall be performed in a manner consistent with the degree and skill ordinarily exercised by licensed Contractors practicing under the same or similar conditions.
- 2.8 The scope of the Work may only be adjusted by the CCP process, as outlined in 4.2.4 below.

- 2.9 Any ambiguities in the Proposal not otherwise resolved by mutual written agreement of the Parties will be resolved in favor of Texas Tech, and to the extent any terms in the Proposal conflict with this Agreement, the terms of the Agreement prevail.

Article 3. Designation of Contractor and Responsibilities

- 3.1 Texas Tech appoints, designates, and authorizes the Contractor and the Contractor accepts the appointment as Contractor in connection with the scope of the Work and services and any additional work set forth and described in this Agreement and the Contract Documents.
- 3.2 Texas Tech and the Contractor agree and acknowledge that Texas Tech is entering into this Agreement in reliance on the Contractor's special and unique expertise with respect to the performance of its obligations, and the Contractor's special and unique abilities with respect to construction services.
- 3.2.1 The Contractor shall use its resources and expertise to perform the Work, and to further the interests of Texas Tech in accordance with Texas Tech's requirements and procedures.
- 3.2.2 The Contractor shall perform the Work in accordance with the highest standards of the Contractor's profession or business and in compliance with all Applicable Laws, Texas Tech's Regents' Rules and Operating Policies, and Texas Tech Design and Construction Standards.
- 3.2.3 The Contractor warrants, represents, covenants, and agrees that there are no obligations, commitments, or impediments of any kind that will limit or prevent its performance of the Work.
- 3.3 The Contractor warrants, represents, covenants, and agrees that all of the services to be performed by the Contractor under or pursuant to this Agreement will be of the standard and quality typically provided among similar businesses and organizations of superior knowledge and skill engaged in providing similar.
- 3.4 Contractor agrees that Owner's observation, review, or approval of Contractor's work or services will not diminish Contractor's duties, responsibilities, or liabilities under this Agreement, it being understood that the Owner is ultimately relying upon the Contractor's skill and knowledge in performing the work and services hereunder.
- 3.5 All persons connected with the Contractor directly in charge of the Work under this Agreement must be duly registered and/or licensed under the laws, rules and regulations of any authority having jurisdiction.
- 3.6 The Contractor agrees to expeditiously notify Texas Tech in writing regarding the Drawings, Specifications, plans, sketches, instructions, information, requirements, procedures, and/or other instruments of service describing the Work supplied to the Contractor by Texas Tech or any other party that it regards, in its opinion, as unsuitable, improper, inconsistent, or inaccurate in connection with the purposes for which such document or data is furnished.
- 3.6.1 Nothing shall excuse or relieve the Contractor's responsibilities or obligations in a case where such document or data is furnished unless the Contractor advises Texas Tech in writing that in its opinion such document or data and any requests made for action are unsuitable, improper, inconsistent, or inaccurate and Texas Tech confirms in writing that it wishes the Contractor to proceed in accordance with the document or data.
- 3.7 The Contractor agrees and covenants to perform and fulfill all duties and responsibilities under this Agreement with due diligence, in the most expeditious and economical manner feasible, consistent with the interests of Texas Tech.

- 3.8 The Contractor shall, at its own cost, correct defects in the Work as soon as the Contractor becomes aware of such defects or is notified of such defects.
- 3.8.1 Should the Contractor refuse or neglect to correct such defects within a reasonable time after receiving notice requesting such remedial work, then Texas Tech shall be entitled to correct such defective services to meet Texas Tech's requirements at the expense of the Contractor.
- 3.8.2 This commitment by the Contractor is in addition to, and not in substitution for, any other remedy for defective services that Texas Tech may have at law or in equity.
- 3.8.3 The Contractor's obligations with respect to construction services (as defined in Article 4 of this Agreement) are set forth in the UGSC and the Contract Documents.
- 3.9 The Contractor represents it is a corporation duly organized, validly existing and in good standing under the laws of the State of Texas, that it has all necessary organizational power and has received all necessary approvals to execute and deliver the Work under this Agreement, and the individual(s) executing the Agreement on behalf of the Contractor has been duly authorized to act for and bind the Contractor.
- 3.10 The Contractor represents and warrants that it will advise Texas Tech of anything of any nature discovered or any drawings, inspections, plans, sketches, etc. and other data supplied by Owner under this Agreement that is unsuitable, improper, or inaccurate for the purposes for the Work.
- 3.11 The Contractor represents that neither the execution and delivery of this Agreement by the Contractor nor the performance of its obligations under the Agreement will result in the violation of any provision of its organizational documents, or any agreement by which the Contractor is bound, or, to the best of the Contractor's knowledge and belief, will conflict with this Agreement or/and any order or decree of any court or governmental instrumentality relating to the Contractor.
- 3.12 Except for the obligation of Texas Tech to pay the Contractor the agreed upon Contract Sum Amount pursuant to the terms of this Agreement, Texas Tech shall have no liability to the Contractor or to anyone claiming through or under the Contractor by reason of the execution of this Agreement or performance of this Agreement.
- 3.12.1 Despite any obligation or liability of Texas Tech to the Contractor, no present or future partner or affiliate of Texas Tech or any agent, officer, director, employee, or Regent of Texas Tech, Texas Tech University System, or of the components comprising Texas Tech University System, or anyone claiming through or under Texas Tech has or shall have any personal liability to the Contractor or to anyone claiming through or under the Contractor by reason of the execution or performance of this Agreement.
- 3.13 Contractor shall designate in writing a representative who is responsible for the day-to-day management of the construction services to be performed by the Contractor pursuant to this Agreement.
- 3.13.1 The designated representative shall be Texas Tech's primary contact during the Work and shall be available as required for the benefit of the Project and Texas Tech.
- 3.13.2 The designated representative shall be authorized to act on behalf of and bind the Contractor in all matters related to the Work including, but not limited to, execution of Construction Change Requests, Construction Change Proposals, Agreement Amendments, and Applications for Payment as well as approved Change Directives.
- 3.14 Attachment D identifies the Contractor's Project personnel. The personnel identified in Attachment D may not be changed except with Texas Tech's prior written approval.

3.15 Subcontracts

- 3.15.1 The Contractor shall notify Texas Tech in advance in writing of the identities of all Subcontractors with which it intends to subcontract.
- 3.15.2 The Contractor shall not subcontract with any Subcontractor to which Texas Tech has a reasonable objection or does not provide the best value.
 - 3.15.2.1 Such notice shall be given sufficiently in advance to permit Texas Tech adequate time for review without delay to the Project and allowing time for the Contractor to make substitute selections, but in no event shall such notice be given less than ten (10) consecutive days before the intended Subcontract date.
- 3.15.3 When the Contractor's Subcontractors for constructing the Work have been identified, they may not be changed without Texas Tech's prior written approval.
- 3.15.4 Texas Tech shall not be liable for the Contractor's Subcontract costs incurred prior to Texas Tech's issuance of a written Notice to Proceed for such Work.
- 3.15.5 Prior to entering into any agreement with a potential Subcontractor, the Contractor must disclose in writing to Texas Tech whether the desired Subcontractor that is related to, affiliated with, partially or wholly owns, or is partially or wholly owned by the Contractor.
 - 3.15.5.1 As described above, the Contractor shall not contract with any Subcontractor, whether initially, or as a substitute against whom Texas Tech has a reasonable objection, including if the Contractor is related to, affiliated with, partially or wholly owns, or is partially or wholly owned by the potential Subcontractors.
 - 3.15.5.2 The Contractor's agreement with its subcontractors cannot supersede this Agreement.
- 3.15.6 For purposes of reviewing cost proposals for changes in the Work, claims, and Subcontracts to be performed on a time and materials or cost-plus basis, Texas Tech may request the Contractor to require all of its Subcontractors to submit, in a form acceptable to Texas Tech, a detailed breakdown of all costs components which comprise the applicable Subcontractor personnel and required materials to do the Work.
 - 3.15.6.1 As part of Texas Tech's review and approval, the Subcontractor shall provide information reasonably and timely if and when requested by Texas Tech to substantiate the Subcontractor labor rates.
 - 3.15.6.2 All Subcontractor labor rates may be subject to external third-party audit review and shall be subject to the approval by Texas Tech in writing. Such Subcontractor labor rates shall include only the actual wages and salaries and labor burden as described in Article 2 of the UGSC and in Division 01 of the Project Specifications.

3.16 Sex Offender Registration

- 3.16.1 The Contractor agrees to provide the notice required by Article 3 Texas Tech's current adopted Uniform General Conditions and Supplementary General Conditions to all of its employees and Subcontractors who may work on any campus of Texas Tech University System.

Article 4. Construction Services

Revised 02/12/2025

CSP Construction Services Agreement

Project Name, FP&C XX-XX

FP&C #25-04, TTUHSC PSL Renovation-2nd Floor

- 4.1 The Work shall be deemed to commence upon or after the date specified in a Notice to Proceed issued by Texas Tech and substantially completed within **Written Number (Figures)** consecutive calendar days after the date of the Notice to Proceed. The Contractor shall complete all remaining Work required by the Contract Documents, including correction of deficiencies, within thirty (30) days after the date of Substantial Completion to achieve Final Completion.
- 4.2 In implementation of the responsibilities and duties of the Contractor, the Contractor shall provide the following services:
 - 4.2.1 Project Control
 - 4.2.1.1 The Contractor shall construct the Work in strict accordance with the Contract Documents within the time required by the Construction Project Schedule approved by Texas Tech and as required by the UGSC, and the other Contract Documents, including but not limited to Division 00 and 01 of the Project Specifications.
 - 4.2.1.1.1 The Contractor shall award and enter into all Subcontracts necessary and appropriate to provide all labor and materials for the construction of the Project.
 - 4.2.1.1.2 Texas Tech reserves the right to perform Work related to the Project and to award separate Contracts for Work related to the Project. In such cases, the Contractor will cooperate with Texas Tech's Contractors.
 - 4.2.1.2 Coordinate the Work well in advance of scheduled execution and monitor all Subcontractor's performance of the Work as required to maintain quality requirements acceptable to Texas Tech.
 - 4.2.1.3 Attend all project progress meetings and fully advise the Project Team at such meetings as to Project status, including, but not limited to, review of Project Schedule, Project delays, budget, scope, submittals, Requests for Information (RFI), Additional Supplementary Information (ASI), Construction Change Requests (CCR), Construction Change Proposals (CCP), Pay Applications, and suggestions for Project and/or process improvement.
 - 4.2.1.4 Schedule, direct, and attend regular meetings and document meeting minutes as requested or required by Texas Tech with other members of the Project Team during the construction of the Project to discuss jointly such matters as procedures, progress, issues, and scheduling.
 - 4.2.1.4.1 Prior to each meeting, the Contractor shall prepare and distribute to the other Project Team members a written agenda for the meeting.
 - 4.2.1.4.2 Prepare and distribute at each Project Team meeting an Actions Items Log within forty-eight (48) hours setting forth the list of critical activities that require immediate action and the date(s) by when the activity must be completed, and record and distribute the minutes of each meeting indicating attendees, decisions reached, and items pending.
 - 4.2.1.5 As provided in Attachment D, maintain competent, full-time staff to coordinate and provide general direction and coordination of the Work and progress of the Subcontractors on the Project.

- 4.2.1.6 As provided in Attachment D, establish On-Site and off-site organization of personnel and clearly defined lines of authority to accomplish overall execution of the Project.
- 4.2.1.7 In consultation with Texas Tech, establish procedures for coordination among the Project Team, Subcontractors, separate Construction Managers, Design Professionals, Owner's Third Party, and other consultants with respect to all aspects of the construction of the Project, and implement such procedures.
- 4.2.1.8 The Contractor shall supervise and direct the Work and shall be solely responsible for construction means, methods, techniques, sequences, schedules, and procedures for the Work.
- 4.2.1.9 As provided in the UGSC, the Contractor shall assume full responsibility for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and all other facilities and services necessary for the proper execution and completion of the Work in strict accordance with the requirements of the Contract Documents.
 - 4.2.1.9.1 The Contractor shall make all required payments to Subcontractors, vendors, employees, suppliers, service providers, and others retained by the Contractor to successfully complete the Work.
- 4.2.1.10 Obtain building permits and special permits for permanent improvements as required by Applicable Law or the Contract Documents. Assist Texas Tech or the Design Professional in obtaining all approvals required from authorities having jurisdiction over the Project.
- 4.2.1.11 The Contractor shall be responsible for managing Project Quality Assurance and Quality Control (QA/QC) of the Work of its Subcontractors.
 - 4.2.1.11.1 This includes proper and precise workmanship when installing and integrating all materials, equipment, and building systems into the Project per the Contract Documents.
 - 4.2.1.11.2 The Contractor shall act appropriately, with due diligence, to correct deficient Work as identified by Texas Tech such as to eliminate impacts to the Project Schedule.
- 4.2.1.12 Inspect the Work of Subcontractors to confirm quality assurance and conformance with the Contract Documents.
- 4.2.2 Critical Path Scheduling
 - 4.2.2.1 Perform Project Scheduling using software listed in Article 9 of the UGSCs.
 - 4.2.2.1.1 Provide regular monitoring, updating, and distribution of Project Schedules as construction progresses, including, without limitation, the master Project schedule, detailed construction schedule, tracking of Project delays, submittals schedule, inspection schedules, and occupancy schedules.
 - 4.2.2.1.2 Identify actual variances between scheduled and probable completion dates, review the schedules for Work not started or incomplete and recommend to Texas Tech adjustments in the

schedules to conform with the probable completion dates and provide summary reports to Texas Tech of each schedule update and document all changes in construction schedules.

- 4.2.2.1.3 Incorporate activities of the Subcontractors and other parties affecting the progress of the Work, including, without limitation, activity sequences and durations, allocation of labor and materials, processing of Shop Drawings, data, samples, and delivery of long lead time items.
- 4.2.2.1.4 Include Texas Tech's occupancy requirements and occupancy priorities.
- 4.2.2.1.5 Evaluate Subcontractor's personnel and equipment, and availability of supplies and materials, with respect to each Subcontractor's ability to meet the Project Schedule.
- 4.2.2.2 Submit an updated construction Project Schedule monthly with each construction Application for Payment.
- 4.2.3 Cost Control
 - 4.2.3.1 Maintain cost accounting records in good form on expenditures and materials, or for any other expenditures requiring accounting records, and afford Texas Tech full access to these records, in accordance with Article 15, and preserve them for a period of seven (7) years after Final Payment is made by Texas Tech to the Contractor.
 - 4.2.3.2 Prepare, administer, and provide to Texas Tech, Subcontractors' Schedule of Values, Subcontractors' sworn statements and Waivers of Lien as required (such requirement includes, but is not limited to, submission of Subcontractors' partial lien waivers within all monthly Applications for Payment).
 - 4.2.3.2.1 In addition, provide contract and disbursement summaries inclusive of, but not limited to: Landscape Enhancements logs, Construction Change Request (CCR) logs, Construction Change Proposal (CCP) logs, and Change Directive listings, Change Orders and Change Directives, and budget cost summary reports as required by Texas Tech. All required invoice items are found in Trimble Unity Construct (formerly e-Builder) at <https://app.e-builder.net/public/publicLanding.aspx?QS=2b30b7f1bcca46d7a22cab88aa59a23c>.
 - 4.2.3.2.2 Schedule of Values shall include specific line items for Change Orders, Change Directives, and the transfers of contingencies.
- 4.2.4 Change Orders
 - 4.2.4.1 The Contractor shall utilize the Construction Change Proposal (CCP) process in eBuilder as developed by Texas Tech for the preparation, review and processing of proposed Change Orders, Construction Change Proposals resulting from Construction Change Requests, and Change Directives, in accordance with Article 11 of the UGSC and Division 00 and 01 of the Project Specifications.

- 4.2.4.1.1 Those provisions of the UGSC are amended with regard to pricing Change Orders and Construction Change Proposals, including Contractor Fees for such changes to the extent in conflict with Article 5.
 - 4.2.4.1.2 Lump sum and lot pricing for Change Orders and Construction Change Proposals are not permitted unless specifically preauthorized in writing by Texas Tech. Instead, a detailed breakout of all cost and labor shall be required, except as expressly approved in writing by Texas Tech in advance.
 - 4.2.4.1.3 Any Change Orders or Construction Change Proposals not containing sufficient, itemized detail as determined by Texas Tech in support of all pricing changes may be rejected by Texas Tech at its sole discretion.
- 4.2.4.2 The Contractor shall start any request to spend Contractor's Contingency (CM) in Trimble Unity Construct (formerly e-Builder) as a CCP process. This request shall be routed through Trimble Unity Construct (formerly e-Builder) and once approved by Owner in writing, the Contractor will be authorized to use the CM Contingency.
- 4.2.4.3 The Contractor prepares a CCP quoting a price for the extra work. Texas Tech must agree on the scope, price, and schedule. The CCP must be approved in eBuilder for the work to be authorized. No CCP will be approved that causes a contingency amount to be overdrawn.
- 4.2.4.4 All Construction Change Proposals are subject to Tier 2 audit verification.
- 4.2.5 Wage Rates
 - 4.2.5.1 Maintain strict enforcement of State of Texas prevailing wage laws in accordance with the UGSC.
 - 4.2.5.2 Cooperate with Texas Tech in monitoring the submission to Texas Tech of payroll records by the various Subcontractors when requested.
 - 4.2.5.3 The Parties agree that prevailing wage rates adopted by Texas Tech will apply unless Texas Tech notifies Contractor otherwise in writing.
 - 4.2.5.4 Contractor agrees to provide prevailing wage survey forms, in accordance with the Contract Documents, not less than at least once for each worker during the duration of the project as part of the construction invoice process—including prevailing wage and fringe benefit rates for the purpose of Texas Tech to collect relevant data and use the surveys in continued prevailing wage rate determinations.
- 4.2.6 Commissioning, Testing, Adjusting and Balance (Cx/TAB), Inspections, and Testing
 - 4.2.6.1 The Contractor shall actively participate and fully cooperate in the International Energy Conservation Code required Commissioning, Testing, Adjusting and Balancing process including, but not limited to, the extents required per applicable State and Federal building codes.
 - 4.2.6.1.1 The Contractor shall schedule, track and complete building systems installations and timely submit all required documentation

to assist the Commissioning Agent in execution of their work based on the Commissioning Plan mutually agreed to by Texas Tech, the Contractor, and the Commissioning Agent.

4.2.6.1.2 The Contractor shall incorporate the Commissioning Agent's planned completion milestones into the Project construction schedule, continually update those dates to align with projected building systems installation completion and keep Texas Tech and Commissioning Agent apprised of construction schedule changes impacting the Commissioning Agent's ability to perform their work.

4.2.6.2 The Contractor recognizes that failure to provide the required, stipulated documentation at the specified intervals will delay the Commissioning Agent in execution of their work, which, in turn, will delay the Contractor in achieving Substantial Completion. As such, the Contractor agrees to the following:

4.2.6.2.1 Pre-Functional (System Readiness) checklists shall be completed and turned into the Owner and Owner's Commissioning Agent to meet Project schedule.

4.2.6.2.2 Testing, Adjustment and Balance (TAB) shall be complete before commencement of Functional Performance Testing.

4.2.6.2.3 Functional Performance Test (FPT) reports, inclusive of Manufacturer's start-up reports, shall be completed and turned into the Owner and Owner's Commissioning Agent.

4.2.6.2.4 Corrective Action Report (CAR) and all identified deficiencies must be corrected by the Contractor and their Subcontractors such as to not delay Substantial Completion.

4.2.6.2.5 All final Commissioning (Cx) documentation and Owner' training shall be completed and submitted prior to Substantial Completion.

4.2.6.3 In the event any test or inspection performed by the Commissioning Agent results in a failure to comply with design intent requirements, or otherwise requires retesting or reinspection, the Contractor shall be responsible for all costs of retesting and/or reinspection associated with validating performance requirements are in compliance with the design intent.

4.2.6.4 Similarly, in the event materials tested results in a failure, or otherwise requires retesting or reinspection, the Contractor shall be responsible for all costs associated with retesting and/or reinspection.

4.2.7 Storm Water Pollution Prevention Program (SWPPP)

4.2.7.1 Implement and maintain the Project SWPPP, submit required Notice(s) of Intent (NOI) and Notice(s) of Termination (NOT), with copies to Texas Tech.

4.2.7.1.1 Conduct Best Management Practices (BMP) required inspections, keep required records and update the plan as necessary as required by the UGSC.

- 4.2.7.1.2 SWPPP costs are to be reported as a separate line item in the Application for Payment Schedule of Values, for the purpose of tracking associated costs and reporting to Texas Commission on Environmental Quality (TCEQ).

4.2.8 Documents, Shop Drawings, and Submissions

- 4.2.8.1 The Design Professional shall interpret the design intent of the construction Contract Documents, subject to the terms and conditions of the agreement between the Design Professional and Texas Tech, provided, however, the Contractor shall request such interpretations from the Design Professional, with Texas Tech's consent, from time to time in order to facilitate the Contractor's accomplishment of its duties under this Agreement.
- 4.2.8.2 In collaboration with the other members of the Project Team, the Contractor shall establish and implement procedures for expediting the processing and Design Professionals' approval of Shop Drawings and other submissions, and in accordance with Division 01 of the Project Specifications, as applicable; receive from the Subcontractors and review all Shop Drawings and other submissions for conformance with the Contract Documents; and coordinate Shop Drawings and other submissions with the Contract Documents and other related documents prior to transmitting them to other members of the Project Team.
- 4.2.8.3 The Contractor shall record the progress of the Project, submit written progress reports to Texas Tech and the other members of the Project Team, including information on the Subcontractor's Work and the percentage of completion, and keep a daily log of Project construction activities available to the other members of the Project Team in accordance with the UGSC, and each member of the Contractor's Site personnel whose job function involves or includes observation of Project construction shall maintain a daily log of construction activities and observations.
- 4.2.8.4 The Contractor shall maintain at the Project Site and make available to Texas Tech daily logs, visitor logs, SWPPP records, updated records of Subcontracts, drawings, product samples, purchases, materials, equipment, Maintenance and Operating manuals and instructions, material safety data sheets, and other construction related documents, including all changes and revisions, a directory of personnel, Project correspondence, inspection procedures (as prepared by others), testing laboratory procedures (as prepared by others), , time extensions, progress payment data, final acceptance procedures, instructions from Texas Tech; and shall obtain data from Subcontractors and maintain a current set of As-Built Drawings and Project manual.
- 4.2.8.5 Coordinate and facilitate the collection of constructed conditions data to formulate the creation of As-Built Drawings, and the procurement of warranties and guarantees.
- 4.2.8.6 Provide Texas Tech with complete, unaltered copies of all Subcontracts and Subcontract-Amendments, if requested.

4.2.9 Safety and Health

- 4.2.9.1 The Contractor is responsible for Project safety and health, including all safety precautions and programs in connection with execution of the Work as stated in Article 7 of UGSC.
- 4.2.9.2 The Contractor shall review the safety and health programs developed by each of the Subcontractors and ensure compliance with all applicable requirements of the Occupational Safety and Health Act of 1970, as amended, or modified, and all other Applicable Laws, and with any Texas Tech-controlled insurance programs.
 - 4.2.9.2.1 The Contractor shall ensure compliance by the Subcontractors with their contractual safety and health requirements.
 - 4.2.9.2.2 The existence of any Texas Tech-controlled insurance programs shall not operate to diminish or eliminate in any way the Contractor's responsibilities under this paragraph.
- 4.2.9.3 Texas Tech retains the right, but not the duty, to inspect the Project and adjacent areas impacted by the construction for safety compliance.
- 4.2.9.4 All safety incidents or near misses must be reported to Texas Tech.
- 4.2.9.5 Texas Tech may require the Contractor to immediately correct any safety and health issues observed by Texas Tech that are related to the Work and communicated to Contractor either orally or in writing.
 - 4.2.9.5.1 By retaining this right to inspect, Texas Tech does not accept any responsibility to verify that the safety issues were corrected.
 - 4.2.9.5.2 Notwithstanding the foregoing, as between Texas Tech and the Contractor, it is the Contractor's sole obligation to ensure the Project and adjacent areas remain safe and secure.
 - 4.2.9.5.3 The Contractor's failure or refusal to correct any safety issue is a material breach of this Agreement.
- 4.2.10 Project Close Out
 - 4.2.10.1 The Contractor shall conform with Texas Tech's requirements as stated in Article 12 of the UGSC for satisfactory Project Close Out inclusive of, but not limited to, the completion of all necessary corrective actions to resolve Punchlists and regulatory non-compliance to Texas Tech's satisfaction, submission of all required documentation at Substantial Completion, and the proactive scheduling, coordination and training (audio/video documentation) of all specified Owner training with vendors and manufacturers prior to Substantial Completion so that the Project can be successfully relinquished to the component Institution, fully functional and operational, for its intended use and purpose as required by the Contract.

Article 5. Compensation and Payments

- 5.1 In full consideration of the Contractor's performance of the Work and services under this Agreement, Texas Tech will pay to the Contractor, subject to additions and deductions provided herein, the sum of **Written Amount and no/100 Dollars \$Figure** in periodic progress payments as herein provided.

5.2 The Contract Sum includes the following amounts:

- 1) Owner Contingency Allowance included in Contract Sum: \$ [Amount]
- 2) Dollar value of materials to be incorporated into the Work: \$ [Amount]
- 3) Dollar value of labor and materials not incorporated in the Work: \$ [Amount]

5.3

5.4 This separation of the Contract Sum into materials and labor values indicated above is required in order for the Contractor to be able to purchase free of State sales tax the materials to be incorporated into the Work. Texas Tech qualifies for exemption from state and local sales and use taxes pursuant to the provisions of the Texas Limited Sales, Excise and Use Tax Act. The Contractor may claim exemption from payment of applicable state taxes by complying with the procedures prescribed by the State of Texas Comptroller of Public Accounts.

5.5 Alternates, if applicable

- 5.5.1 Texas Tech may, at its sole discretion, within one hundred and eighty (180) days from the execution date on page one (1) of this Agreement, award the following Alternates at the amounts indicated. The numbering of the Alternates corresponds to their original numbering in the Contractor's completed competitive sealed proposal form. These amounts are not included in the Contract Sum.

| | | |
|-------------|-------------|-------------|
| Alternate # | Description | \$ [Amount] |
| Alternate # | Description | \$ [Amount] |
| Alternate # | Description | \$ [Amount] |

5.6 In the event that a change to the scope of the Work becomes necessary, the following unit prices will apply:

| | |
|-------------|-------------|
| Description | \$ [Amount] |
| Description | \$ [Amount] |

5.7 On a monthly basis and subject to the payment procedures described in Article 10 of the UGSC and in Division 00 and 01 of the Project Specifications, the Contractor shall submit an Application for Payment. Supporting documentation should include without limitation: current Schedule of Values, supporting Subcontractor invoices and sworn statements and waivers of lien for all amounts paid to Contractor for materials, labor, equipment, and other costs, and copies of third-party invoices, receipts, and other third-party supporting documents, and any and all other evidence that Texas Tech or the Design Professional shall deem necessary to support the amount requested.

- 5.7.1.1 Each Schedule of Values submitted shall maintain the originally established value for each work classification line item or Subcontractor and shall contain any revisions to costs or cost estimates for each such classification or Subcontractor.
 - 5.7.1.1.1 The format and tracking method of the original Schedule of Values and of all updates thereto shall be subject to the approval of Texas Tech and the Design Professional.
- 5.7.1.2 Payments to Subcontractors included in an Application for Payment shall not exceed the percentage of Work allowable to that Subcontractor for each respective Schedule of Values classification that has been actually completed.

- 5.8 Based on the Application for Payment, Texas Tech shall make a periodic progress payment to the Contractor for the cost of labor, materials, and equipment incurred by the Contractor in relation to the Work during the previous month, except that the percentage of the total amount paid shall not exceed the percentage amount of the Work that has been completed as determined in the reasonable judgment of Texas Tech and the Design Professional. Upon verification of costs incurred and percentage of Work completed, Texas Tech will make payment to the Contractor within thirty (30) working days or will notify the Contractor of any objection to the invoiced amount.
- 5.9 Texas Tech shall have the right to withhold from payments due the Contractor such sums as are necessary to protect Texas Tech against any loss or damage that may result from negligence by the Contractor or failure of the Contractor to perform the Contractor's obligations under this Agreement to the satisfaction of Texas Tech and as set forth in UGSC.
- 5.9.1 The amount Texas Tech may withhold under this provision may encompass any actual damages incurred by Texas Tech, including but not limited to the costs of damages, defects, supplementing the Work of the Contractor, additional inspection fees, management fees, administration costs, maintenance costs, material testing fees, commissioning fees, professional services fees and Design Professional and Construction Manager-Agent fees.
- 5.10 The final request for payment shall not be made until the Contractor delivers to Texas Tech a complete release of all liens arising out of this Agreement, conditioned only upon receipt of the amount requested for Final Payment, and an affidavit that, so far as the Contractor has knowledge or information, the release includes and covers all materials and services over which the Contractor has control for which a lien could be filed and a digital copy of the consent of surety .
- 5.10.1 If any lien is asserted against Texas Tech after all payments are made, the Contractor shall refund to Texas Tech all moneys Texas Tech may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees, and Texas Tech shall have all remedies at law and in equity.
- 5.11 In addition to the procedures contained in the UGSC, Texas Tech shall have no obligation to make Final Payment until a final accounting of the Work has been submitted by the Contractor and has been verified by Texas Tech or its representatives in accordance with the Contract Documents.
- 5.11.1 The aggregate total of payments to the Contractor shall not exceed the total of the actual Work as verified by Texas Tech or its representative from the Contractor's final accounting as certified for payment in accordance with the Agreement.
- 5.11.2 If payments made to the Contractor exceed that which is due and owing pursuant to Article 5 of this Agreement, then the Contractor shall within fifteen (15) calendar days refund such excess to Texas Tech.
- 5.12 Nothing in this Agreement shall require Texas Tech to pay the Contractor an aggregate amount exceeding the Agreement or to make payment if in Texas Tech's belief the cost to complete the Work would exceed the Agreement amount less previous payments to the Contractor.
- 5.13 Texas Tech shall not be obligated to make any payment (whether a progress payment or Final Payment) to the Contractor hereunder, and Texas Tech may deduct and/or withhold from any monies due to Contractor, if any one or more of the following conditions exist:
- 5.13.1 The Contractor is in material breach or default under this Agreement;
- 5.13.2 Any part of such payment is attributable to services that are not performed in accordance with this Agreement; provided, however, such payment shall be made as to the part thereof attributable to services that were performed in accordance with this Agreement;

- 5.13.3 The Contractor has failed to make payments promptly to Subcontractors, consultants or other third parties used in connection with the services for which Texas Tech has made payment to the Contractor;
- 5.13.4 If Texas Tech, in its good faith judgment, determines that the portion of the compensation then remaining unpaid will not be sufficient to complete the services and Work in accordance with this Agreement, no additional payments will be due the Contractor unless and until the Contractor, at the Contractor's sole cost, performs a sufficient portion of the remaining services and Work so that such portion of the compensation then remaining unpaid is determined by Texas Tech to be sufficient to so complete the remaining Work; and/or
- 5.13.5 To the extent Liquidated Damages or actual damages are imposed by Texas Tech for failure of Contractor to complete the Work within the Contract Time.
- 5.14 No partial payment made under this Agreement is or may be construed to be, final acceptance or approval of that part of the services and Work to which such partial payment relates, or a release of the Contractor of any of the Contractor's obligations under this Agreement or liabilities with respect to such services.
- 5.15 The Contractor shall promptly pay all bills for labor and material performed and furnished by Subcontractors or others hired by the Contractor in connection with the performance of the services.
- 5.16 Texas Tech shall have the right to verify and audit in accordance with the Contract Documents the details set forth in Contractor's billings, certificates, accountings, cost data, and statements, either before or after payment therefore, by: (1) inspecting the books and records of Contractor during normal business hours; (2) examining any reports with respect to this Project; (3) interviewing Contractor's business employees; (4) visiting the Project site; and (5) other reasonable action.
- 5.17 The acceptance by the Contractor or the Contractor's successors of Final Payment under this Agreement shall constitute a full and complete release of Texas Tech from any and all claims, demands, and causes of action whatsoever that the Contractor or the Contractor's successors have or may have against Texas Tech under the provisions of this Agreement except those previously made in writing and identified by the Contractor as unsettled at the time of the final request for payment.
- 5.18 Texas Tech shall be billed in accordance with Chapter 2251 of the Texas Government Code and interest, if any, on past due payments shall accrue and be paid in accordance with Chapter 2251 of the Texas Government Code.
- 5.19 All invoices submitted for payment must include a HUB Progress Assessment Report (PAR). The PAR must reflect all current payments to HUB Subcontractors in compliance with the HUB Subcontracting Plan which gets reported back to the State of Texas.

Article 6. Liquidated Damages

- 6.1 Damages for Failure to Meet Substantial Completion
 - 6.1.1 For each consecutive calendar day after the contracted date of Substantial Completion set forth in Article 4, plus any extensions of time granted by Amendment, that the Work is not substantially completed, an amount as set forth in Attachment C will be deducted from the money due or that becomes due the Contractor, not as a penalty but as liquidated damages, representing the Parties' estimate at the time of Agreement execution of the damages that Texas Tech will sustain related to Texas Tech's inability to fully utilize the facilities due to delayed Substantial Completion.

- 6.1.2 If the money due or that becomes due to the Contractor is less than the amount of Liquidated Damages, the Contractor is liable for the excess of Liquidated Damages over the amount ultimately due to the Contractor, and the Contractor shall pay that amount within ten (10) days following written demand.
- 6.1.3 The Parties stipulate and agree that the actual damages sustained by Texas Tech related to Texas Tech's inability to fully utilize the facilities due to late Substantial Completion of the Project will be uncertain and difficult to ascertain, that calculating Texas Tech's actual damages would be impractical, unduly burdensome, and cause unnecessary delay, and that the amount of liquidated damages established in the Contract Documents is a reasonable estimate of such actual damages.
- 6.1.4 Liquidated Damages do not cover, and Contractor is liable for, any additional Project costs Texas Tech incurs as a result of late Substantial Completion, including the costs of supplementing the Work of the Contractor, additional inspection and testing, management, administration, maintenance, and Design Professional and Construction Manager-Agent fees.
- 6.1.5 Payment of the Liquidated Damages does not preclude recovery by Texas Tech of other damages or losses under other provisions of the Agreement, except for claims related to Texas Tech's inability to fully utilize the facilities due to late Substantial Completion of the Project. Texas Tech's right to receive Liquidated Damages for this purpose will not affect Texas Tech's right to terminate the Agreement as provided in the UGSC or elsewhere in the Contract Documents, nor shall termination of the Agreement release the Contractor from the obligation to pay the liquidated damages.
- 6.2 Damages for Failure to Meet Final Completion
 - 6.2.1 For each consecutive calendar day after the completion of thirty (30) days from the date of Substantial Completion that Final Completion is not met, plus any extensions of time granted by Amendment, an amount as set forth in Attachment C will be deducted from the money due or that becomes due the Contractor, not as a penalty but as liquidated damages, representing the Parties' estimate at the time of Agreement execution of the damages that Texas Tech will sustain related to Texas Tech's inability to fully utilize the facilities due to delayed Final Completion.
 - 6.2.2 If the money due or that becomes due to the Contractor is less than the amount of Liquidated Damages, the Contractor is liable for the excess of Liquidated Damages over the amount ultimately due to the Contractor, and the Contractor shall pay that amount within ten (10) days following written demand.
 - 6.2.3 The Parties stipulate and agree that the actual damages sustained by Texas Tech related to Texas Tech's inability to fully utilize the facilities due to late Final Completion of the Project will be uncertain and difficult to ascertain, that calculating Texas Tech's actual damages would be impractical, unduly burdensome, and cause unnecessary delay, and that the amount of liquidated damages established in the Contract Documents is a reasonable estimate of such actual damages.

Article 7. HUB Contracting Commitment

- 7.1 In addition to, and distinct from, any good faith effort required by Applicable Laws, the Contractor commits to use certified HUB Contractors to perform work valued at a minimum of **written amount percent (XX.XX%)** of the Cost of the Work as stated in the Contractor's Proposal.

Article 8. HUB Subcontracting Plan

- 8.1 The Contractor shall comply with the HUB Subcontracting Plan (HSP) submitted with its Proposal. Failure to comply with the HSP may constitute a material breach of this Agreement, as determined at Texas Tech's sole discretion.
- 8.2 If at any time during the term of this Agreement, the Contractor desires to make changes to the approved HSP, the Contractor shall comply with the good faith effort requirements to solicit HUB Subcontractors as demonstrated in the original HSP, submit a revised HSP for that portion of Work, and obtain Texas Tech's prior written approval.
- 8.3 If Texas Tech expands the original scope of Work through a Construction Change Request (CCP), Change Directive, or other Amendment to the Contract, or a Contract renewal that expands the scope of Work, and the Contractor determines additional subcontracting opportunities exist, the Contractor shall comply with the good faith effort requirements to solicit HUB Subcontractors as demonstrated in the original HSP, submit a revised HSP for that portion of the Work, and obtain Texas Tech's prior written approval.
- 8.4 The Contractor shall submit updated HUB Subcontracting Plans (HSP) with submission of Applications for Payment at fifty percent (50%) and one hundred percent (100%) construction completion.
 - 8.4.1 Applications for Payment submitted at fifty percent (50%) and one hundred percent (100%) construction completion without an updated HSP will be returned to the Contractor unpaid.
- 8.5 The Contractor will maintain business records documenting compliance with its HSP and will submit the HSP Progress Assessment Report (PAR) with each Application for Payment. The HSP Progress Assessment Report submission will be required as a condition for payment.

Article 9. Texas Tech's Responsibilities

- 9.1 Texas Tech will cooperate in providing information to the other members of the Project Team regarding its requirements for the Project.
- 9.2 Texas Tech will provide testing and inspection services to the extent required by Texas Education Code § 51.783 as amended or modified.
- 9.3 Texas Tech will provide TAB and commissioning services to the extent required by Texas Education Code § 51.783 as amended or modified.

Article 10. Indemnity and Hold Harmless

- 10.1 Contractor covenants and agrees to FULLY INDEMNIFY and HOLD HARMLESS, Texas Tech and the elected and appointed officials, employees, officers, directors, volunteers, and representatives of Texas Tech, individually or collectively, from and against any and all costs, claims, liens, damages, losses, expenses, fees, fines, penalties, proceedings, actions, demands, causes of action, liability and suits of any kind and nature, including but not limited to, personal or bodily injury, death or property damage, made upon Texas Tech directly or indirectly arising out of, resulting from or related to Contractor's activities under this Agreement, including any acts or omissions of Contractor, or any agent, officer, director, representative, employee, consultant or the Subcontractor of Contractor, and their respective officers, agents, employees, directors and representatives while in the exercise of performance of the rights or duties under this Agreement.

- 10.2 The indemnity provided for in this Article does not apply to any liability resulting from the negligence of the Texas Tech, its officers or employees, separate Contractors or assigned Contractors, in instances where such negligence causes personal injury, death or property damage.
- 10.3 IN THE EVENT CONTRACTOR AND TEXAS TECH ARE FOUND JOINTLY LIABLE BY A COURT OF COMPETENT JURISDICTION, LIABILITY WILL BE APPORTIONED COMPARATIVELY IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS, WITHOUT WAIVING ANY GOVERNMENTAL IMMUNITY AVAILABLE TO THE STATE UNDER TEXAS LAW AND WITHOUT WAIVING ANY DEFENSES OF THE PARTIES UNDER TEXAS LAW. WITHOUT LIMITING THE INDEMNITY REQUIRED ABOVE, THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS TEXAS TECH AND ITS REGENTS, OFFICERS, AGENTS, EMPLOYEES, AND REPRESENTATIVES FROM LIABILITY OF ANY NATURE OR KIND, INCLUDING COST AND EXPENSE, FOR OR ON ACCOUNT OF INFRINGEMENT OR USE OF ANY PATENTED OR OTHERWISE PROTECTED INVENTION, PROCESS, DOCUMENT, OR ARTICLE IN THE PERFORMANCE OF THIS CONTRACT, INCLUDING ITS USE BY TEXAS TECH.
- 10.4 The indemnity **provisions set forth in this Section shall survive** the expiration or earlier termination of this Agreement and any other services to be provided pursuant to this Agreement.

Article 11. Bonds and Insurance

11.1 Bonds

11.1.1 Performance and Payment Bonds

- 11.1.1.1 When the Contract Sum is established, the Contractor shall provide to Texas Tech, at the Contractor's expense and prior to commencing the Project, for one hundred percent (100%) of the Contract Sum that comply with the requirements of Texas Government Code Chapter 2253. If the Agreement is modified by an approved Change Order that increases the Contract Sum, the amount of the Payment and Performance Bonds must be increased accordingly and the revised Bonds must be sent to the Contract Manager.

11.1.2 Subcontractor Bonds

- 11.1.2.1 Subcontractor bonding is required for subcontracts in excess of five hundred thousand dollars (\$500,000), or as otherwise approved in advance by Texas Tech in writing.
- 11.1.2.2 Failure to provide required Subcontractor bonding may constitute a material breach of this Agreement, as determined in Texas Tech's sole discretion.
- 11.1.2.3 Subcontractor surety bonds are required unless Texas Tech, in its sole discretion, provides prior written approval for Contractor to self-bond any Subcontractor or to use a sub guard-type program in lieu of Subcontractor surety bonds.
- 11.1.2.4 All Subcontractor bonds shall name Texas Tech and the Contractor as obliges and shall comply with the applicable provisions of the Contract Documents, including but not limited to, Article 5 of the UGSC.

11.1.3 Subcontractor Default Insurance (SDI) Program

- 11.1.3.1 The Contractor may use Subcontractor Default Insurance program (SDI) in lieu of Performance and Payment Bonds only with Texas Tech's prior written approval, which approval is at Texas Tech's sole discretion.
- 11.1.3.2 If Texas Tech approves the use of SDI in lieu of Subcontractor bonds, the Contractor shall purchase from and thereafter maintain with a company or companies acceptable to Texas Tech and lawfully authorized to do business in the jurisdiction in which the project is located, SDI covering the payment and performance obligations of all enrolled Subcontractors.
- 11.1.3.3 The Contractor is responsible for all deductibles required or otherwise associated with obtaining and securing SDI and shall not pass this cost onto Texas Tech. The SDI shall:
 - 11.1.3.3.1 Include a financial interest endorsement in form and substance satisfactory to Texas Tech naming Texas Tech and any other party identified by Texas Tech as beneficiaries thereunder;
 - 11.1.3.3.2 Be assignable to Texas Tech at Texas Tech's request in the event that the Contractor's services are terminated;
 - 11.1.3.3.3 Insure that each covered Subcontractor will perform each and every part of its Subcontract(s), cover all guarantees called for and insure prompt payment to all persons furnishing material or labor requirement in prosecution of the work under its Subcontract(s);
 - 11.1.3.3.4 Permit additions or deductions from the Work in any amount without diminishing or affecting coverage;
 - 11.1.3.3.5 Require no notice of alterations, additions, or omissions to be given to the insurer; and
 - 11.1.3.3.6 Permit Texas Tech to occupy the Project at any time without diminishing or affecting coverage.
- 11.1.3.4 Certificates of insurance for SDI with the aforementioned financial interest endorsement shall be issued to Texas Tech and such other parties as Texas Tech may request.
- 11.1.3.5 In the event of a default on the part of a Subcontractor, the Contractor shall, without cost to Texas Tech, promptly exercise all of the rights under the SDI program and pay all costs arising from such default.
- 11.1.3.6 The Contractor, at its discretion, may elect to exclude certain Subcontractors from the policy, however, in such instances, the identified Subcontractors will be required to provide Payment and Performance Bonds separately, if requested by Texas Tech.
- 11.1.3.7 The Contractor shall promptly provide a list of those Subcontractors enrolled in the SDI program as well as a list of Subcontractors that are not enrolled in the SDI program, upon written request by Texas Tech.

11.1.4 Self-Bonding

- 11.1.4.1 Self-insurance for bonding coverages is not permitted.

11.2 Insurance

Revised 02/12/2025

CSP Construction Services Agreement

Project Name, FP&C XX-XX

FP&C #25-04, TTUHSC PSL Renovation-2nd Floor

- 11.2.1 Refer to UGSC Article 5 for insurance requirements for this Agreement.
- 11.2.2 The Contractor may not begin any Work under the Agreement unless it has complied with all Insurance Coverage Requirements.
- 11.2.3 All insurance shall be procured through insurance carriers that are licensed to do business in the State of Texas, and all coverages placed are subject to Texas Tech's approval as to form and content, as well as carrier. All required coverages shall be obtained and paid for by the Contractor and its Subcontractors at no additional cost to Texas Tech.
- 11.2.4 It is understood and agreed that the insurance required by this Agreement is in the public interest and Texas Tech does not assume any liability for acts or omissions of the Contractor, any Subcontractor, or their respective employees or agents in the performance of this Agreement.
- 11.2.5 Coverages and Coverage Limits
 - 11.2.5.1 Insurance coverages and the respective minimum insurance limits required to be maintained by the Contractor are as stated in Article 5 of the UGSC and the Special Conditions, if any, with the requirements in the Special Conditions controlling in the event of any conflict with the other requirements.
 - 11.2.5.2 All policies of insurance required in order to meet the Insurance Coverage Requirements, except a Workers' Compensation policy and Professional Liability insurance, shall name Texas Tech, the Contractor, and any other parties identified in writing by Texas Tech as additional insureds.
- 11.2.6 The Contractor shall not cause or allow any of its insurance furnished to meet the Insurance Coverage Requirements to be canceled nor permit any insurance to lapse during the term of the Agreement or as required in the Agreement. Upon receipt of any notice of cancellation or alterations, the Contractor and Subcontractors shall, within ten (10) days thereafter, procure other policies of insurance that are acceptable to Texas Tech and similar in all respects to the policy or policies about to be canceled or altered.
- 11.2.7 Texas Tech reserves the right to review the Insurance Coverage Requirements during the effective period of the Agreement and to make reasonable adjustments to the insurance coverage and their limits when deemed necessary and prudent by Texas Tech.
- 11.2.8 Texas Tech will be entitled, upon request, and without expense, to receive copies of the policies and all endorsements thereto and may make any reasonable requests for deletion, or revision or modification of particular policy terms, conditions, limitations, or exclusions, except where policy provisions are established by Applicable Laws that are binding upon either of the Parties or the underwriter of any such policies. Actual losses not covered by insurance furnished to meet the Insurance Coverage Requirements shall be paid by the Contractor.

Article 12. Audits and Records

- 12.1 Texas Tech and the State Auditor's Office in accordance with the Contract Documents may inspect, verify, and audit all information created or maintained by the Contractor or its Subcontractors, agents, and consultants relating to the Project, including but not limited to information relating to the Contractor's costs, payments, billings, certificates, accountings, and statements as well as any other correspondence, books, records, documents, and electronic data, of any kind, relating to the Project, at any time, whether before or after payment therefore, by:
 - 12.1.1 Inspecting the books and records of the Contractor during normal business hours;

- 12.1.2 Examining any reports with respect to this Project;
- 12.1.3 Interviewing the Contractor's business employees, Subcontractors, agents, and consultants;
- 12.1.4 Visiting the Project Site; and
- 12.1.5 Other reasonable actions.
- 12.2 Such information shall be available and open to review, inspection, and audit by Texas Tech or its representatives at any place(s) where such information is kept or at Texas Tech's place of business, if requested by Texas Tech.
- 12.3 Required financial and other records, including supporting documentation, shall be provided electronically to Texas Tech or its designated representative(s) or to the State Auditor's Office within five (5) business days of a request for records and at no expense to Texas Tech.
- 12.4 Final payment and retainage under this Agreement will not be made until any audit under this Section has been completed and all issues resolved.
- 12.5 The Contractor and its Subcontractors, agents, and consultants shall keep all such records until the Final Completion of construction and then for a minimum of forty-eight (48) months after the later of the date that Final Payment has been made or the Work is complete unless Texas Tech otherwise instructs the Contractor in writing.
- 12.6 The Contractor shall keep all accounting records for a period of seven (7) years after final payment is made by Texas Tech to the Contractor.
- 12.7 The Contractor shall provide in all of its agreements and Subcontracts a written statement indicating that Texas Tech and the State Auditor's Office are entitled to audit and inspect all such information under the conditions set forth in this Agreement.
- 12.8 Texas Tech is not obligated to make the Final Payment, including release of retainage, until the Contractor or its Subcontractors, agents and consultants have complied with the audit rights set out in this Agreement, including providing documents and information requested for audit purposes, and the amounts payable have been verified by Texas Tech's representatives.
- 12.9 Texas Tech reserves the right to perform audits (including any and all methods and tasks described in this Section) under this Agreement (including audits of the Contractor's related agreements and Subcontracts) 1) in the interim, at any time during the Work; and 2) after the Work is complete, at any time during the period records are required to be maintained under this Agreement.
- 12.10 If an audit is in progress as of the date of expiration of the time period during which records are required to be maintained under this Agreement, Texas Tech is granted a reasonable amount of time to complete the audit, and the records shall be preserved and made available to Texas Tech until the audit is complete.

Article 13. Termination

- 13.1 In addition to the termination provisions set forth in the UGSC, if the Contractor is in default or breach under this Contract and does not cure such default or breach within fourteen (14) consecutive days after written notice from Texas Tech specifying the nature of the default, Texas Tech may terminate this Agreement.
- 13.2 Texas Tech may terminate this Agreement upon thirty (30) days written notice to Contractor.
- 13.3 If the Contract is terminated under Article 13, then the Contractor shall be compensated for the services that it has completed in accordance with this Agreement prior to the date of termination.

- 13.4 A termination under this Agreement above does not relieve the Contractor or any of its employees or agents of liability for violations of this Agreement, including liability for any act or omission, or negligence of the Contractor.
- 13.5 As of the date of termination of this Agreement, the Contractor shall furnish to Texas Tech all statements, accounts, reports, and other materials as are required by this Agreement, or as have been prepared by the Contractor in connection with the Contractor's responsibilities under this Agreement.
- 13.5.1 Texas Tech shall have the right to use the ideas and designs therein contained for the completion of the services described by this Agreement, and for completion of the Project, or otherwise.
- 13.5.2 All Drawings, Specifications, renderings, and models, etc., prepared by the Design Professional are the property of Texas Tech or Design Professional, as set forth in the terms and conditions of the Agreement between Texas Tech and the Design Professional.
- 13.5.3 The Design Professional's instruments of services are not to be used by any person or entity other than Texas Tech unless expressly authorized by Texas Tech.

Article 14. Notices

- 14.1 All notices, consents, approvals, demands, requests, or other communications provided for or permitted to be given under any of the provisions of this Agreement shall be in writing and shall be deemed to have been duly given or served when delivered by hand delivery or by nationally recognized courier service, or when deposited in the U.S. mail by registered or certified mail, return receipt requested, postage prepaid, and addressed as follows:
- 14.1.1 If to the Contractor:
- [Individual's Name]
[Company Name]
[Address]
[City, State Zip]
[Phone No.: (000)000-0000]
[Email address]
- 14.1.2 If to Texas Tech:
- Billy Breedlove
Vice Chancellor for Facilities Planning & Construction
System Administration Building
1508 Knoxville Avenue, Suite 103
Lubbock, TX 79409
Box 42014
Lubbock, Texas 79409-2014
Phone: (806) 742-2116
- 14.1.3 With an Additional Copy of any notice of termination or notice required by Article 15, concerning dispute resolution to:
- Vice Chancellor and General Counsel
Texas Tech University System
System Administration Building
1508 Knoxville Avenue, Suite 301
Lubbock, Texas 79409

Box 42021
Lubbock, Texas 79409-2021
Phone No.: (806) 742-2155
Fax No.: (806) 742-2330

- 14.2 If the notice is mailed, it shall be deemed delivered within forty-eight (48) hours after the postmark date.
- 14.3 Either Party may change its designations by written notice to the other.

Article 15. Miscellaneous Provisions

- 15.1 This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original.
- 15.2 The Work shall be performed by the Contractor in such a manner and at such a time so as to minimize interference with or interruption of the operations of Texas Tech.
 - 15.2.1 Without limiting the foregoing, Contractor shall comply with all requirements regarding campus access and rules and procedures for vendors and Contractors performing work on the property of Texas Tech component institutions. Institutional Operating Policies can be found at: <https://www.texas-tech.edu/policies.php>, which includes, but is not limited to, the following Operating Policies and Procedures for:
 - 15.2.1.1 Use of University Grounds, Facilities and Amplification Equipment
 - 15.2.1.2 Traffic and Parking
 - 15.2.1.3 Smoke-Free and Tobacco-Free Environment
 - 15.2.1.4 Animals in Buildings
 - 15.2.1.5 Institutional Police
- 15.3 This Agreement and the Parties' performance under this Agreement must comply with and is subject to State and Federal laws, and Texas Tech's institutional policies and procedures, including its Regents' Rules, Operating Policies, and Facilities Planning and Construction Operating Procedures for Contracting, as those laws, policies, and procedures may be amended from time to time. Breach of this provision may, at Texas Tech's sole discretion, be considered a material breach of this Agreement.
- 15.4 American Iron and Steel
 - 15.4.1 To the extent a Contract relates to a project as defined in Texas Government Code §2252.201(5) (a project to construct, remodel, or alter a building, structure, or infrastructure; to supply material for such a project; or to finance, refinance, or provide funds for such a project), and no exemption in Texas Government Code §2252.203 applies, any iron or steel product produced through a manufacturing process and used in the project that is the subject of Contract must be produced in the United States (as defined in Texas Government Code §2252.201(4)).
- 15.5 Appointment
 - 15.5.1 Texas Tech hereby expressly reserves the right from time to time to designate, by notice to the Contractor, one or more representatives to act partially or wholly for Texas Tech in connection with the performance of Texas Tech's obligations under this Agreement. The

Contractor shall act only upon instructions from such representatives unless otherwise specifically notified to the contrary.

15.6 Assignment

- 15.6.1 This Agreement is a personal service contract for the services of the Contractor, and the Contractor's interest in this Agreement, duties and/or fees due may not be assigned or delegated to a third party.
- 15.6.2 The benefits and burdens of this Agreement are, however, assignable by Texas Tech to a component or affiliate of the Texas Tech University System or a branch or agency of the State of Texas.

15.7 Available Funds

- 15.7.1 Texas Tech shall have the right to cancel this Agreement at the end of the then current fiscal period if funds are not allotted for the next fiscal year to continue this Agreement.
- 15.7.2 Texas Tech may affect such cancellation by giving the Contractor written notice of its intention to cancel not less than thirty (30) days prior to the end of the then current fiscal period, stating its reasons for cancellation.
- 15.7.3 Upon cancellation of this Agreement, Texas Tech shall not be responsible for the payment of any services received which occur after the end of the current fiscal period.

15.8 Binding Effect/Authorization

- 15.8.1 This Agreement is binding on and inures to the benefit of the Parties and their respective permitted assigns and successors. The Parties each represent and warrant that they have the full right and legal authority to enter into this Agreement and to grant the rights and perform the obligations in this Agreement and that no third-party consent or approval is required.

15.9 Certifications

- 15.9.1 The Contractor and the undersigned Contractor's representative represent and warrant that the Contractor is a validly existing entity, in good standing under Applicable Law, and that each person signing on behalf of the Contractor has received all necessary approvals to enter into and execute this Agreement.
- 15.9.2 The Contractor certifies this Agreement is not prohibited under Texas Government Code §2261.252(b) and agrees that if the Contractor's certification is or becomes untrue, this Agreement is void, and the Contractor will not seek and waives its right to seek any legal or equitable remedy for past or future performance under this Agreement, including damages, whether under breach of contract, unjust enrichment, or any other legal theory; specific performance; and injunctive relief.
- 15.9.3 Under Section 231.006, Texas Family Code, the Contractor certifies that the individual or business entity named in this Agreement is not ineligible to receive the specified grant, loan, or payment and acknowledges that this Agreement may be terminated, and payment may be withheld if this certification is inaccurate.
- 15.9.4 Under Section 2155.0061, Texas Government Code, the Contractor certifies that the individual or business entity named in this Agreement is not ineligible to receive the specified Agreement and acknowledges that this Agreement may be terminated, and payment withheld if this certification is inaccurate.

- 15.9.5 Pursuant to Executive Order No GA-48, Contractor certifies that it, and, if applicable, its holding companies or subsidiaries, are not:
 - 15.9.5.1 Listed in Section 889 of the 2019 National Defense Authorization Act (NDAA); or
 - 15.9.5.2 Listed in Section 1260H of the 2021 NDAA; or
 - 15.9.5.3 Owned by the government of a country on the U.S. Department of Commerce's foreign adversaries list under 15 C.F.R. § 791.4; or
 - 15.9.5.4 Controlled by any governing or regulatory body located in a country on the U.S. Department of Commerce's foreign adversaries list under 15 C.F.R. § 791.4.
- 15.10 Compliance with Texas Government Code § 2274.002
 - 15.10.1 Contractor verifies it 1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and 2) will not discriminate during the term of the Agreement against a firearm entity or trade association.
- 15.11 Conflict Between Contract Documents
 - 15.11.1 If, and to the extent of, any inconsistency, ambiguity, or discrepancy in the Contract Documents, precedence shall be given to the Contract Documents in the following order of priority:
 - 15.11.1.1 Written Amendments to this Agreement entered into in accordance with the requirements hereof after execution of this Agreement;
 - 15.11.1.2 This Agreement, including the attachments attached hereto and incorporated fully herein;
 - 15.11.1.3 The UGSC
 - 15.11.1.4 The final issue for Construction Drawings and Specifications incorporated into the Contract Documents;
 - 15.11.1.5 The Drawings and Specifications incorporated into the Contract Documents, with those bearing the latest sealed date taking precedence; and
 - 15.11.1.6 Any proposals submitted by the Contractor in the procurement for the Project and other documents identified in the Agreement as Contract Documents which have not been incorporated into the Agreement.
 - 15.11.2 Without limiting the foregoing, the terms of the Agreement and the UGSC shall control over any terms in the Drawings, Specifications, or any Attachment attached to this Agreement inconsistent therewith.
- 15.12 Conflict of Interest
 - 15.12.1 The Contractor affirms that, to the best of its knowledge, no actual or potential conflict exists between the Contractor's family, business, or financial interests and its services required under this Agreement and that it shall immediately inform Texas Tech regarding any possible conflict of interest that may arise.
 - 15.12.1.1 The Contractor further affirms that it shall not hire any officer or employee of Texas Tech to perform any service covered by this Agreement.

- 15.12.1.2 If the Work is to be performed in connection with a Federal contract or grant, the Contractor shall not hire any employee of the United States Government to perform any service covered by this Agreement.

15.13 Discrimination

- 15.13.1 The Contractor shall not discriminate against an employee or applicant for employment with respect to hiring, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of race, color, religion, national origin, age, veteran status, sex, or disability. Breach of this provision may, at Texas Tech's sole discretion, be considered a material breach of this Agreement.

15.14 Dispute Resolution

- 15.14.1 Except to the extent Texas Civil Practice and Remedies Code Chapter 114 applies, the dispute resolution process provided for in Texas Government Code Chapter 2260 shall be used by Texas Tech and the Contractor in an attempt to resolve any unresolved claim for breach of contract arising under this Agreement and made by the Contractor.
- 15.14.2 Refer to Article 15 of Texas Tech's current adopted Uniform General Conditions and Supplementary General Conditions for dispute resolution provisions.

15.15 Enforcement

- 15.15.1 It is acknowledged and agreed that the Contractor's services to Texas Tech are unique, which gives the Contractor a distinct value to Texas Tech which for the loss to Texas Tech may not be reasonably or adequately compensated in damages; accordingly, the Contractor acknowledges and agrees that a breach by the Contractor of the provisions hereof will cause Texas Tech irreparable injury and damage.
- 15.15.2 The Contractor, therefore, expressly agrees that Texas Tech shall be entitled to injunctive and/or other equitable relief in any court of competent jurisdiction to prevent or otherwise restrain a breach of this Agreement.

15.16 Entire Agreement and Modifications

- 15.16.1 The Contract Documents supersede all prior negotiations, representations, agreements, and contracts, written or oral, between the Contractor and Texas Tech and constitute the entire Agreement between the Parties with respect to the subject matter.
- 15.16.2 This Agreement and each of its provisions are binding upon the Parties and may not be waived, modified, amended, or altered except by an Amendment signed by Texas Tech and the Contractor.

15.17 Force Majeure

- 15.17.1 "Event of Force Majeure" means an event beyond the control of the Contractor or Texas Tech which prevents or makes a Party's compliance with any of its obligations under this Agreement illegal or impracticable, including but not limited to: act of God (including, without limitation, fire, explosion, earthquake, tornado, drought, and flood); war, act or threats of terrorism, hostilities (whether or not war be declared), invasion, act of enemies, mobilization, requisition, or embargo; rebellion, insurrection, military or usurped power, or civil war; contamination or destruction from any nuclear, chemical, or biological event; riot, commotion, strikes, go slows, lock outs, or disorder; epidemic, pandemic, viral outbreak, or health crisis; or directive of governmental authority.

- 15.17.2 No Party will be considered in breach of this Agreement to the extent that performance of their respective obligations is prevented or made illegal or impracticable by an Event of Force Majeure that arises during the term (or after execution of the Agreement but prior to the beginning of the term).
- 15.17.3 A Party asserting an Event of Force Majeure hereunder (“Affected Party”) will give reasonable notice to the other Party of an Event of Force Majeure upon it being foreseen by, or becoming known, to Affected Party.
- 15.17.4 In the event of an Event of Force Majeure, Affected Party will endeavor to continue to perform its obligations under the Agreement only so far as reasonably practicable.
- 15.17.5 This provision does not apply to delays in the Contract Time Requirements and extensions to which the Contractor may be entitled pursuant to Article 9 of the UGSC or as otherwise provided in the Special Conditions.
- 15.18 Governance
 - 15.18.1 This Agreement shall be governed by and construed in accordance with the laws of the State of Texas, and shall be considered performable in Lubbock County, Texas.
- 15.19 Health and Safety Code Chapter 161
 - 15.19.1 If applicable, the Contractor affirmatively states that it will comply with the requirements of Texas Health and Safety Code, § 161.0085(c).
- 15.20 Incorporated by Reference
 - 15.20.1 All attachments and all other documents are incorporated by reference for all purposes.
- 15.21 Independent Contractor
 - 15.21.1 The Contractor is an independent Contractor licensed to perform work in the State of Texas and shall maintain complete control of the Contractor’s personnel, consultants, and operations. As such, the Contractor shall pay all salaries, wages, expenses, social security taxes, federal and state unemployment taxes, and any similar taxes, including franchise taxes, relating to the performance of this Agreement.
 - 15.21.2 The Contractor, its employees, agents, and consultants shall not represent themselves or act as Texas Tech’s employees or agents, enter into any agreements or incur any obligations on Texas Tech’s behalf, nor commit Texas Tech in any manner.
 - 15.21.3 Nothing contained in this Agreement is deemed to create a partnership, joint venture, employment, or agency agreement between Texas Tech and the Contractor.
- 15.22 No Prohibited Boycott
 - 15.22.1 If applicable to this Agreement, Contractor agrees not to engage in any boycott prohibited by Texas Government §§ 2271.002, 2274.001.
- 15.23 Public Information
 - 15.23.1 Contractor agrees that it shall not publicize this potential Contract or disclose, confirm or deny any details thereof to third parties or use any photographs or video recordings, including but not limited to social media , of the Texas Tech’s employees or use Texas Tech’s name in connection with any sales promotion or publicity event without prior written approval.

15.24 Software Requirements

15.24.1 Texas Tech utilizes two (2) software platforms called Trimble Unity Construct (formerly e-Builder) and Bluebeam Revu to develop Project record and expedited Project processes during construction.

15.24.1.1 These applications are a collaboration tool, which will allow all Project team members continuous access through the internet to important Project data as well as up-to-the-minute decision and approval status information.

15.24.1.2 No additional software will be required.

15.24.2 The Contractor must use these platforms in the daily management of this Project.

15.24.3 The Contractor must pay for the number of licenses it deems appropriate for this project.

15.24.3.1 Texas Tech will reimburse for up to three (3) Trimble Unity Construct (formerly e-Builder) licenses.

15.24.3.2 Texas Tech will not reimburse for Bluebeam Revu subscription plans or any additional software platforms not required under this agreement.

15.24.4 Project Requirements

15.24.4.1

15.24.4.2 Contractor and its consultants shall conduct Project controls outlined by Texas Tech utilizing Trimble Unity Construct (formerly e-Builder) and Bluebeam Studio Project.

15.24.4.2.1 These designated applications will be provided by Contractor to consultants.

15.24.4.3 The Program Director will coordinate with appropriate Texas Tech personnel to assist the Contractor in training its consultants' personnel on the use of Trimble Unity Construct (formerly e-Builder) and Bluebeam Revu.

15.24.4.4 The Contractor and its Subcontractors must visit the Trimble Unity Construct (formerly e-Builder) website on a daily basis, and as necessary to remain fully apprised of Project developments, correspondence, assigned tasks and other matters that transpire on the site.

15.24.4.4.1 These may include but are not limited to: Agreements, Agreement exhibits, Agreement Amendments, Drawing issuances, Addenda, permits, insurance and bonds, safety program procedures, safety notices, accident reports, personnel injury reports, schedules, Site logistics, field reports, daily logs, non-conformance notices, quality control notices, Punchlists, meeting minutes, Requests For Information, submittal packages, substitution requests, monthly payment request applications, supplemental instructions, owner variation directives, potential variation orders, variation order requests, variation orders, and the like.

15.24.4.4.2 All supporting data including but not limited to Applications for Payment, Shop Drawings, submittals, safety SDS sheets, Substitution Requests, and the like must be submitted in digital format via Trimble Unity Construct (formerly e-Builder).

15.24.5 Electronic File Requirements

15.24.5.1 In addition to the standard Close Out submittal requirements detailed elsewhere in the Contract Documents, Contractor and its consultants shall submit all Close Out Documents including all As-Built Drawings, catalog cuts, and Operation and Maintenance manuals in digital format.

15.24.5.2 All documents (including As-Built Drawings) shall be converted to true PDF file format and uploaded to Trimble Unity Construct (formerly e-Builder). Image-only (scanned) PDFs are not acceptable.

15.25 Survival

15.25.1 The terms and provisions of Article 10 "Indemnity," Article 11 "Bonds and Insurance," Article 12 "Audits and Records," Article 15 "Assignment" and Article 15 "Dispute Resolution," shall survive termination of this Agreement.

15.26 Texas Public Information Act

15.26.1 Contractor acknowledges its understanding that Texas Tech is a public institution of higher education in the State of Texas and is subject to requests for information under the Texas Public Information Act (Texas Government Code, Chapter 552).

15.26.2 Under this Act, there are exceptions to requests for disclosure, which include but are not limited to, information confidential by Applicable Law and certain commercial information and trade secrets.

15.26.3 The Texas Attorney General's office makes the final determination whether or not requested information is to be disclosed on a case-by-case basis after reviewing the materials and assertions against disclosure.

15.26.4 If proprietary information is requested, the Act requires Texas Tech to provide written notice to the Party whose proprietary information may be subject to the request and that Party may also submit information to the Texas Attorney General to establish that disclosure of the information would cause substantial competitive harm.

15.27 Third Party

15.27.1 Nothing in this Agreement shall create a contractual relationship between a third party and either Texas Tech or the Contractor.

15.28 U.S. Government Contractor

15.28.1 Texas Tech serves from time to time as a Contractor for the United States Government. Accordingly, if the Contractor provides goods or services in connection with such contracts, it shall comply with Applicable Laws governing or relating to Subcontractors of government contracts.

15.29 Validity/Enforceability

15.29.1 In case any provision, for any reason, is held invalid or unenforceable in any respect, such invalidity or unenforceability shall not affect any other provision, and this Agreement shall be construed as if such invalid or unenforceable provision had not been included.

15.30 Waivers

15.30.1 No delay or omission by either of the Parties in exercising any right or power accruing upon the non-compliance or failure of performance by the other Party of any of the

provisions of this Agreement shall impair any such right or power or be construed to be a waiver of the provision(s).

- 15.30.2 A waiver by either of the Parties of any Agreement term to be performed by the other Party shall not be construed to be a waiver of any subsequent breach or of any other Agreement term.

Article 16. Other Conditions or Services

- 16.1 Texas Tech hereby authorizes the Chancellor of the Texas Tech University System, or his designated representative, to execute any Amendments or modifications to this Agreement.
- 16.2 Texas Tech will also designate a Sr. Program Director who will be Texas Tech's sole point of contact for all matters of Contract Administration including, but not limited to, interpretation of documents, defining the scope of the Work, approving Work schedules, and approving Agreement payments.
- 16.2.1 Sr. Program Director for the Project is:
- [Sr. Program Director's Name]
[Title]
Facilities Planning and Construction
Texas Tech University System
System Administration Building
1508 Knoxville Avenue, Suite 103
Lubbock, TX 79409
Box 42014
Lubbock, TX 79409-2014
(806) 742-2116
Email: [PD email address]
- 16.2.2 Construction Manager-Agent, if applicable, for the Project is:
- [Construction Manager-Agent Name]
[Address]
[City, State]
[Phone Number]
Email: [CMA email address]
- 16.2.3 Design Professional for the Project is:
- [DP Name]
[Address]
[City, State]
[Phone Number]
Email: [PD email address]
- 16.2.4 The Contractor shall take direction only from Sr. Program Director or ODR.
- 16.2.5 Action taken in response to direction received from other sources will be corrected at the Contractor's own expense.
- 16.3 These designations shall remain in full force and effect until and unless the Contractor is otherwise notified in writing by Texas Tech.

OWNER:
TEXAS TECH UNIVERSITY SYSTEM

CONTRACTOR:
[COMPANY NAME]

By: _____
[Tedd L. Mitchell, M.D., Chancellor]
Or [_____
[Billy Breedlove, Vice Chancellor]

By: _____
[Individual's Name, Title]

Date: _____

Date: _____

REVIEWED FOR FISCAL IMPLICATIONS

By: _____
James Mauldin, Chief Financial Officer

Date: _____

Attachments Incorporated in the Contract:

- Attachment A – Specifications, Drawings, Addenda
- Attachment B – Special Conditions
- Attachment C – Contractor's Proposal Form dated [Month, Day, Year]
- Attachment D – Contractor's Project Personnel
- Attachment E – HUB Subcontracting Plan

Other Contract Documents incorporated by reference, as if repeated verbatim, in the Contract:

- Contractor's Request for Proposals (RFP) Response dated [Month, Day, Year]
- Texas Tech University System Uniform General Conditions and Supplementary General Conditions for Construction Contracts (rev. 09/07/23)

Attachment A

Specifications, Drawings, Addenda

The following documents constitute the Scope of Work for this Project:

1. Specifications
 - a. Volume 1
 - b. Volume 2
2. Drawings
 - a. Landscape
 - b. Civil
 - c. Architectural
 - d. Structural
 - e. Mechanical
 - f. Electrical
3. Addenda
 - a.

Attachment B

Special Conditions

The following terms and conditions shall supplement the terms and conditions set forth in the Agreement and the UGSC, but the terms and conditions below shall control over any inconsistent terms and conditions in the UGSC.

None.

TEXAS SALES AND USE TAX EXEMPTION CERTIFICATION

| | |
|---|------------------------------|
| Name of purchaser, firm or agency | |
| Address (Street & number, P.O. Box or Route number) | Phone (Area code and number) |
| City, State, ZIP code | |

I, the purchaser named above, claim an exemption from payment of sales and use taxes (for the purchase of taxable items described below or on the attached order or invoice) from:

Seller: _____


Street address: _____ City, State, ZIP code: _____

Description of items to be purchased or on the attached order or invoice:

Purchaser claims this exemption for the following reason:

I understand that I will be liable for payment of all state and local sales or use taxes which may become due for failure to comply with the provisions of the Tax Code and/or all applicable law.

I understand that it is a criminal offense to give an exemption certificate to the seller for taxable items that I know, at the time of purchase, will be used in a manner other than that expressed in this certificate, and depending on the amount of tax evaded, the offense may range from a Class C misdemeanor to a felony of the second degree.

| | | |
|--|-------|------|
|  Purchaser | Title | Date |
|--|-------|------|

NOTE: This certificate cannot be issued for the purchase, lease, or rental of a motor vehicle.

THIS CERTIFICATE DOES NOT REQUIRE A NUMBER TO BE VALID.

Sales and Use Tax "Exemption Numbers" or "Tax Exempt" Numbers do not exist.

This certificate should be furnished to the supplier. Do **not** send the completed certificate to the Comptroller of Public Accounts.

SECTION 00 73 36 - EQUAL OPPORTUNITY CLAUSE

TEXAS TECH UNIVERSITY SYSTEM
LUBBOCK, TX

PART 1. GENERAL

1.1 PURCHASE ORDERS AND CONTRACTS OF \$10,000 OR MORE

- A. Except as otherwise provided, each administering agency shall require the inclusion of the following language as a condition of any grant, contract, loan, insurance, or guarantee involving federally assisted construction which is not exempt from the requirements of the equal opportunity clause: Texas Tech will carry out the HUB policies through race/ethnic and gender-neutral means, and make a good faith effort to achieve the annual program goals by identifying and utilizing HUBs in construction contracts, professional services, and commodities contracts.
- B. The applicant hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:
- C. During the performance of this contract, the contractor agrees as follows:
 - 1. The contractor will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, creed, color, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment of recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in notices to be provided setting forth the provisions of this nondiscrimination clause.
 - 2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, or national origin.
 - 3. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
 - 4. The contractor will comply with all provisions of Executive Order of 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
 - 5. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
 - 6. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for

00 73 36 Equal Opportunity Clause

Page 1 of 2

further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

7. The contractor will include the portion of the sentence immediately preceding paragraph 1. and the provisions of paragraphs 1. through 7. in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the including sanctions for noncompliance: Provided, however, That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.
- D. The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work; Provided, That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.
- E. The applicant agrees that is will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the responsibility for securing compliance.
- F. The applicant further agrees that it will refrain from entering into a contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee): refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

END OF SECTION



2010 Uniform General Conditions

Texas Tech University System Uniform General Conditions and Supplementary General Conditions for Construction Contracts [UGSC]

The Texas Tech University System has incorporated its Supplementary Conditions that apply to all Texas Tech System and member institution construction projects into the Uniform General Conditions promulgated by the Texas Facilities Commission (2010 edition). Material changes are indicated by the bold typeface shown here; however, deleted provisions of the Texas Facilities Commission's Uniform General Conditions are not included in the Texas Tech System Uniform General Conditions and Supplementary General Conditions [UGSC]. All users are advised to read and understand this entire document.

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Article 1. Definitions

Unless the context clearly requires another meaning, the following terms have the meaning assigned herein. Capitalized terms not defined herein shall have the meaning assigned to such terms in the Agreement or any Special Conditions.

- 1.1 ***Agreement*** means the contract between Texas Tech and the Contractor that is part of the Contract Documents.
- 1.2 ***Agreement Amendment*** means an amendment to the Agreement. Reference Article 11.
- 1.3 ***Allowance(s)*** means a fixed sum for a specific portion of the Work used when the exact character or quality of an element of the Work is not known. The Contractor shall include in the Contract Sum all Allowances stated in the Contract Documents. Unless otherwise provided in the Contract Documents (1) Allowances shall cover the cost to the Contractor of materials and equipment delivered at the Site and all required taxes, less applicable trade discounts; (2) Contractor's costs for unloading and handling at the Site, labor, installation costs, overhead, profit and other expenses contemplated for stated Allowance amounts shall be included in the Contract Sum but not in the Allowances; and (3) whenever costs are more than or less than Allowances, the Contract Sum shall be adjusted accordingly by Change Order. Any unused Allowance will be required to be moved to Owner's Contingency and will not be allowed to be moved to Buyout Contingency.
- 1.4 ***Alternates*** means all project scopes identified by Texas Tech to be separated (materials and labor costs) from base services in an attempt to evaluate costs relative to project scope.
- 1.5 ***Applicable Law (Applicable Laws)*** means all laws and relevant designated authorities having statutory enforcement authority related thereto, expressly including the laws of the state of Texas, statutes, ordinances, regulations, guidelines or requirements now in force or hereafter enacted by any applicable local, state or federal governmental authority relating to or affecting the Project or arising from this Contract, including, if and as applicable (1) the United States Occupational Safety and Health Administration requirements (and similar state and local governmental statutes and requirements in the jurisdiction in which the Project is located); (2) the Americans with Disabilities Act requirements (and similar state and local governmental statutes and requirements in the jurisdiction in which the Project is located); (3) requirements under Title VII of the Civil Rights Act of 1964, as amended; (4) the Age Discrimination in Employment Act requirements; (5) requirements of the Fair Labor Standards Act and applicable state wage and hour laws; (6)

applicable local, state, and published Texas Tech University System building codes and requirements; (7) storm water, street, utility and other related infrastructure requirements; and (8) requirements related to the use, removal, storage, transportation, disposal and remediation of Hazardous Materials.

1.6 *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. **The application shall include, but not limited to the following items:**

- **Signed Voucher/Invoice**
- **Schedule of Values/Backup**
- **Construction Payment Affidavit**
- **Waiver/Release Form**
- **HUB PAR**
- **Current Construction Schedule**
- **Payment Projection Form**
- **Allowance Log matching GMP**
- **Tool Log**
- **Landscape Enhancement Log**
- **Approved CCP Backup tied to this AFP**
- **Subcontractor partial lien waivers monthly**
- **Worker Wage Rate Form**
- **Stored Materials – Refer to Article 10**
- **At fifty (50) percent Billing-Updated HSP**
- **At one hundred (100) percent Billing-Updated HSP**

1.7 *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.

- 1.8 *Architect/Engineer (A/E)* means a person registered as an architect pursuant to Tex. Occ. Code Ann., Chapter 1051, as a landscape architect pursuant to Tex. Occ. Code Ann., Chapter 1052, a person licensed as a professional engineer pursuant Tex. Occ. Code Ann., Chapter 1001, and/or a firm employed by Owner or Design-Build Contractor to provide professional architectural **and**/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.
- 1.9 *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, **using longest duration methodology**, durations and necessary predecessor conditions that drive the end date of the schedule. **The Baseline Schedule shall include commissioning and functional testing of all building automation systems (BAS), lighting control systems, and all activities such as TAB, Commissioning, installation of all IT, AV, wireless devices, security systems, access controls installation and functional testing.** The Baseline Schedule shall not exceed the time limit current under the Contract Documents.
- 1.10 *Buyout Contingency* – reference Article 11.
- 1.11 *Buyout Contingency Log* means a written report identifying all variances between estimated and actual costs.
- 1.12 *Certificate of Final Completion* means the certificate **or other written notification** 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 Close Out Documents required by the Contract Documents.
- 1.13 *Certificate of Substantial Completion* means the certificate executed by the A/E, Owner, and Contractor that documents to the best of A/E's and Owner's knowledge and understanding, Contractor's Substantial Completion of the Work in accordance with the Contract, so as to be operational and fit for the use intended.
- 1.14 *Change Directive* is a written order (which may or may not be prepared or agreed to by the A/E) signed by the Owner, directing a change in the Work, including the performance of Work which Contractor disputes as being

included in its scope of the Work under the Contract Documents (“disputed Work”), prior to agreement on adjustment, if any, of the Contract Sum or Contract Time, or both. The Owner may by Change Directive, without invalidating the Contract, order changes in the Work or the performance of disputed Work consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly (to the extent such adjustment is required by the Contract Documents). Owner may issue a Change Directive to accept a Construction Change Proposal (CCP) in whole or in part.

- 1.15 *Change Order* means a written modification **to the Agreement via amendment** of the Contract between Owner and Contractor, signed by Owner and Contractor.
- 1.16 *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.
- 1.17 *Competitive Sealed Proposal (CSP)* means the delivery method provided for pursuant to Texas Education Code 51.783, through which Texas Tech may select the best value Contractor under certain procurement criteria including but not limited to lump sum budget, schedule, project scope or other factors Texas Tech determines relevant to the project.
- 1.18 *Construction Change Proposal (CCP)* means a Contractor generated document, in response to a Construction Change Request (CCR), Proposed Change Order (PCO), or Change Directive in such form to clearly detail associated costs as required for approval using the e-Builder CCP process.
- 1.19 *Construction Change Request (CCR)* means a document which describes a proposed change in the Work, including a description and Drawings and Specifications, as necessary, to inform the Contractor, Owner, and A/E of the nature of the proposed change. All CCR’s require ODR’s approval via the CCP process. CCR’s do not increase the contract amount. They are funded with allowances or contingencies within the GMP.
- 1.20 *Contract* means the entire Agreement between Owner and Contractor, including all of the Contract Documents.
- 1.21 *Contract Date* is the date when the Agreement between Owner and Contractor becomes effective.
- 1.22 *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.

- 1.23 *Contract Sum* means the total compensation payable to Contractor for completion of the Work in accordance with the terms of the Contract.
- 1.24 *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.
- 1.25 *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 **(this includes a Contractor selected via a CSP delivery method). To the extent contracts other than construction contracts incorporate these Uniform General Conditions and Supplementary General Conditions, and to the extent appropriate under the terms of the particular type of contract in question, the term Contractor means the party Texas Tech is contracting with (e.g., A/E, Testing and Balancing Agent, Commissioning Agent).** The Contract Documents refer to Contractor as if singular in number.
- 1.26 *Contractor's Contingency (CM Contingency)* means an amount included in the **Guaranteed Maximum Price (GMP) for increases approved at the sole discretion of Texas Tech in the Cost of the Work for costs incurred by the Construction Manager for changes in the market place and for unforeseen causes or details not anticipated by the Construction Manager at the time of the execution of the amendment approving the Guaranteed Maximum Price and for which the Construction Manager is not entitled to an increase in the Guaranteed Maximum Price under the Contract Documents. The Construction Manager may use the Construction Manager Contingency only with the prior written approval of Texas Tech, who retains final discretionary authority for approval of use of the Construction Manager Contingency. The Construction Manager shall report to Texas Tech the status of the Construction Manager Contingency with each Application for Payment. Texas Tech will not increase the Construction Phase fee for any funds approved by Texas Tech and expended from the Construction Manager Contingency.**
- 1.27 *Construction Documents* mean the Drawings, Specifications, and other documents **including any applicable Addenda** issued to build the Project. Construction Documents become part of the Contract Documents when listed in the Contract or any Change Order.

- 1.28 ***Construction Manager-Agent (CMA)* means a sole proprietorship, partnership, corporation, or other legal entity that acts as a fiduciary and provides consultation to Texas Tech regarding construction, rehabilitation, alteration, or repair of a facility. The term “Construction Manager-Agent” is defined in section 51.781 Tex. Educ. Code (as amended or modified).**
- 1.29 ***Construction Manager-at-Risk (CMAR)*, in accordance with section 51.782 Tex. Educ. Code (as amended or modified), 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 the **prime Contractor, enters into an Agreement with the Owner**, and provides consultation to Owner regarding construction during and after the design of the facility.**
- 1.30 *Date of Commencement* means the date designated in the Notice to Proceed for Contractor to commence the Work.
- 1.31 *Day* means a calendar day unless otherwise specifically stipulated.
- 1.32 *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 **section 51.780 Tex. Educ. Code (as amended or modified).**
- 1.33 ***Design Professional (DP)* as used in the Agreement means the Architect/Engineer (A/E).**
- 1.34 *Drawings* mean that product of A/E which graphically depicts the Work.
- 1.35 *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. **The Contractor shall obtain Final Completion by correcting all identified deficiencies for Owner acceptance within thirty (30) days.**
- 1.36 *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.
- 1.37 *Historically Underutilized Business (HUB)* pursuant to Tex. Gov’t Code, Chapter 2161, means a business that is at least **fifty-one (51) percent** 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.

- 1.38 *Notice to Proceed* means written document informing Contractor of the dates beginning Work and the dates anticipated for Substantial Completion.
- 1.39 *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.
- 1.40 *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. **The term “Owner” or “Texas Tech” herein refers to the Board of Regents of the Texas Tech University System or other applicable Texas Tech University System component institutions as identified in the Contract.**
- 1.41 *Owner’s Contingency* means an amount, if any, that is included in the Base Proposal for authorizing additional Work in connection with the Project. **The use thereof requires the written approval or directive of the ODR by Change Order or Change Directive. Any unused amount from the Owner’s Contingency will be returned to the Owner.**
- 1.42 *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.
- 1.43 *Progress Assessment Report (PAR)* means the monthly compliance report to Owner verifying compliance with the HUB subcontracting plan (HSP).
- 1.44 *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 Owner’s requirements and** all Contract and warranty obligations.
- 1.45 *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. **The documents used to define a Proposed Change Orders will be a Construction Change Request.**
- 1.46 *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.
- 1.47 *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.

- 1.48 *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.
- 1.49 *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.
- 1.50 *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.
- 1.51 *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.
- 1.52 *Site* means the geographical area of the location of the Work.
- 1.53 *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.
- 1.54 *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.
- 1.55 ***State means the state of Texas.***
- 1.56 *Subcontractor* means a business entity **or individual** 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.
- 1.57 *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.
- 1.58 ***Submittal Schedule means a schedule that correlates with the Baseline Schedule that shows the dates the Contractor intends to submit the required submittals to the A/E or ODR. This schedule should be part of the Baseline Schedule so that submittals that affect the critical path are clearly identified.***

- 1.59 *Substantial Completion* means the date determined and **declared** 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. **The project must be fully commissioned with functional testing complete for the Building Automation Systems (BAS), Security, Lighting Control Systems, Audio/Visual Systems and must include ADA/TAS inspections. The IT and Network cabling and wireless systems must be complete and verified.**
- 1.60 *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. **Texas Tech's Supplementary General Conditions are set out in these Uniform General Conditions and are in bold font.**
- 1.61 **TTUS** means the Texas Tech University System.
- 1.62 *Unit Price Work* means the Work, or a portion of the Work, paid for based on incremental units of measurement.
- 1.63 *Work* means the provision of all construction services, labor, materials, supplies, and equipment that are required of Contractor to complete the Project in strict accordance with the requirements of this Agreement. **Work includes, but is not limited to, the Construction Phase Services, additional work required by Change Orders, and any other work reasonably inferable from this Agreement. The term "reasonably inferable" takes into consideration the understanding of the parties that some details necessary for completion of the Work may not be shown on the Drawings or included in the Specifications, but they are a requirement of the Work if they are a usual and customary component of the Work or otherwise necessary for complete installation and operation of the Work.**
- 1.64 *Work Progress Schedule* means the continually updated time schedule **based on Baseline 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 Law, including** 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 comply with Applicable Law regarding prevailing wages on public works project (“Prevailing Wage Law”).** 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.

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.

- 2.2.1.4 **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), **or such greater amount if required by Applicable Law**, 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, Chapter 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,

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 Article 2, the Contractor and/or Subcontractor, as applicable, shall deliver notice thereof to Owner.
- 2.2.3.5 **Arbitration Required if Violation not Resolved.** After Texas Tech makes its initial determination, the affected Contractor or Subcontractor and worker have fourteen (14) days in which to resolve the issue of whether a violation occurred, including the amount that should be retained by Texas Tech or paid to the affected worker. If the Contractor or Subcontractor and affected worker reach an agreement concerning the worker's claim, the Contractor shall promptly notify Texas Tech in a written document signed by the worker. If the Contractor or Subcontractor and affected worker do not agree before the fifteenth (15th) day after Texas Tech's determination, the Contractor or Subcontractor and affected worker must participate in binding arbitration in accordance with the Texas General Arbitration Act, Chapter 171, Tex. Civ. Prac. & Rev. Code. The parties to the arbitration have ten (10) days after the expiration of the fifteen (15) days referred to above, to agree on an arbitrator; if by the eleventh (11th) day there is no agreement to an arbitrator,

a district court shall appoint an arbitrator on the petition of any of the parties to the arbitration.

2.2.3.6 **Arbitration Award.** If an arbitrator determines that a violation has occurred, the arbitrator shall assess and award against the Contractor or Subcontractor the amount of penalty as provided in Article 2 thereof and the amount owed the worker. Texas Tech may use any amounts retained under Article 2 to pay the worker the amount as designated in the arbitration award. If Texas Tech has not retained enough from the Contractor or Subcontractor to pay the worker in accordance with the arbitration award, the worker has a right of action against the Contractor and Subcontractor as appropriate, and the surety of either to receive the amount owed, attorney's fees and costs and court costs. The Contractor shall promptly furnish a copy of the arbitration award to Texas Tech.

2.2.3.7 **Prevailing Wage Retainage.** Money retained pursuant to Article 2 shall be used to pay the claimant or claimants the difference between the amount the worker received in wages for labor on the Project at the rate paid by the Contractor or Subcontractor and the amount the worker would have received at the general prevailing wage rate as provided by the agreement of the claimant and the Contractor or Subcontractor affected, or in the arbitrator's award. Any retained funds in excess of these amounts shall be paid to the Contractor on the earlier of the next progress payment or final payment. Provided, however, that Texas Tech shall have no duty to release any funds to either the claimant or the Contractor until it has received the notices of agreement, or the arbitration award as provided under Article 2.

2.3 **Choice of Law; Venue for Suits.** The Contract Documents shall be governed by and construed in accordance with Applicable Law and without regard to its conflict of laws principles. Provided the dispute resolution requirements of Article 15 of the Uniform General Conditions are met, venue and jurisdiction over any suit brought for breach of contract for this Project shall be in the court of competent jurisdiction in the county designated in the Agreement. If venue is not designated in the Agreement, venue shall be Lubbock, Lubbock County, Texas.

- 2.4 Licensing of Trades. Contractor shall comply with all applicable provisions of **Applicable 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. **Contractor shall defend all suits or claims for infringement of any patent or copyright and shall save Texas Tech harmless from loss or liability, direct or indirect, arising with respect to the Contractor's process in the formulation of its bid or proposal or performance of the Work or otherwise arising in connection therewith. Texas Tech reserves the right to provide its own defense to any suit or claim of infringement of any patent or copyright, in which event the Contractor shall indemnify and save harmless Texas Tech from all costs and expenses, including reasonable attorney's fees, costs and judgments, arising from such defense.**
- 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, Chapter 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.
- 2.7 Compliance with Laws. **In the execution of the Contract Documents and the Work, the Contractor shall comply with all Applicable Law, including but not limited to, laws governing labor, equal employment opportunity, safety, environmental protection, energy and water conservation and consumption, and prevailing wage rates. The Contractor shall make itself familiar with and at all times shall observe and comply with all Applicable Law which in any manner affect the conduct of the Work. The Contractor shall indemnify and save harmless the State and its official representatives against any claim arising**

from violation of any Applicable Law by itself, its Subcontractors, and its employees. Except where expressly required otherwise by Applicable Law, neither Texas Tech nor the A/E shall be responsible for monitoring Contractor's compliance with any laws or regulations.

- 2.7.1 The Contractor shall cooperate with city or other governmental officials at all times where their jurisdiction applies. The Contractor shall make application, pay all fees, and provide supporting documentation necessary to secure permits, which are required for the performance of the Contract Documents and the Work. Contractor has a continuing obligation throughout the term of the Contract to conduct its operations under duly issued permits and, in the event Contractor loses or has revoked a necessary permit, Contractor must take immediate steps to apply for and receive another permit.**

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. ODR has the express authority to act and bind Owner to the extent and for the purposes described in the **Agreement and these Uniform General and Supplementary Conditions**, 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.
- 3.1.3 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 **Article 2**, 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 **Article 3**, 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 **Construction** Documents are necessary. Upon direction by ODR, such clarifications or interpretations will be provided by A/E consistent with the intent of the Construction 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, **security**, 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 Punchlist 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.
- 3.3.3.1 **SEX OFFENDER REGISTRATION.** Contractor agrees to provide the following notice to all of its employees and Subcontractors who may work on any campus of Texas Tech University System:
- ALL SEX OFFENDERS ARE REQUIRED TO REGISTER WITH LOCAL LAW ENFORCEMENT AUTHORITIES UNDER CHAPTER 62 OF THE TEXAS CODE OF CRIMINAL PROCEDURE AND WHO INTEND TO WORK OR CARRY ON A VOCATION (FULL-TIME OR PART-TIME) ON ANY CAMPUS OF THE TEXAS TECH UNIVERSITY SYSTEM FOR A CONSECUTIVE PERIOD EXCEEDING FOURTEEN (14) DAYS OR FOR AN AGGREGATE PERIOD EXCEEDING THIRTY (30) DAYS IN A CALENDAR YEAR. SEX OFFENDERS ARE REQUIRED TO REGISTER (OR VERIFY REGISTRATION) WITH THE TEXAS TECH POLICE DEPARTMENT IN ACCORDANCE WITH ARTICLE 62.153 OF THE TEXAS CODE OF CRIMINAL PROCEDURE WITHIN SEVEN (7) DAYS OF BEGINNING WORK ON ANY CAMPUS OF THE

TEXAS TECH UNIVERSITY SYSTEM. IN ADDITION, SUCH SEX OFFENDERS ARE REQUIRED TO NOTIFY THE TEXAS TECH POLICE DEPARTMENT WITHIN SEVEN (7) DAYS OF TERMINATING WORK ON ANY CAMPUS OF TEXAS TECH UNIVERSITY SYSTEM. FOR ADDITIONAL INFORMATION, PLEASE CONTACT THE TEXAS TECH POLICE DEPARTMENT, 2901 4TH ST., LUBBOCK, TX 79409, 806-742-3931.

- 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.
- 3.3.4.1 **The Contractor or Construction Manager-at-Risk may use, at no cost, the existing Texas Tech campus utility infrastructure to perform the Work, including construction, start-up testing, and commissioning. The Contractor or Construction Manager-at-Risk shall be responsible for all other utility costs including connection charges. In all cases, the Contractor or Construction Manager-at-Risk shall be responsible for utility costs related to all jobsite offices.**
- 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.
- 3.3.6.1 **The approval of Work by either the A/E or ODR does not relieve the Contractor from compliance with all requirements of the Contract Documents where such**

requirements are not judged at the time of observation of the Work due to Work sequences by the Contractor or the lack of time to judge the performance characteristics of the particular Work item.

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.

- 3.3.7.3 **Contractor shall enter into written agreements with all Subcontractors and suppliers which specifically bind the Subcontractors and suppliers to the applicable terms and conditions of the Contract Documents for the benefit of Texas Tech. Texas Tech reserves the right to specify that certain requirements shall be adhered to by all Subcontractors and suppliers as indicated in other portions of the Contract Documents and these requirements shall be made a part of the agreement between Contractor and Subcontractor or supplier.**
- 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 **their** 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 Indemnification of Owner. **To the fullest extent permitted by Applicable Law, including Chapter 151 of the Texas Insurance Code, Contractor covenants and agrees to FULLY INDEMNIFY and HOLD HARMLESS, Owner and the elected and appointed officials (including but not limited to the Board of Regents of the Texas Tech University System), employees, officers, directors, volunteers, and representatives of the Owner, individually or collectively, from and against any and all costs, claims, liens, damages, losses, expenses, fees, fines, penalties, proceedings, actions, demands, causes of action, liability and suits of any kind and nature, including but not limited to, personal or bodily injury, death and property damage, made upon the**

Owner directly or indirectly arising out of, resulting from or related to Contractor's negligent or wrongful (in violation of the terms of the Contract or of Applicable Law) activities under this Contract, including any negligent or wrongful acts or omissions of the Contractor, any agent, officer, director, representative, employee, consultant or Subcontractor (of any tier) of the Contractor, and their respective officers, agents, employees, directors and representatives while in the exercise of performance of the rights or duties under this 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. The indemnity provided for in this paragraph does not apply to any liability resulting from the negligence of the Owner, its officers or employees, separate contractors or assigned contractors, in instances where such negligence causes personal injury, death or property damage. IN THE EVENT CONTRACTOR AND OWNER ARE FOUND JOINTLY LIABLE BY A COURT OF COMPETENT JURISDICTION, LIABILITY WILL BE APPORTIONED COMPARATIVELY IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS, WITHOUT WAIVING ANY GOVERNMENTAL IMMUNITY AVAILABLE TO THE STATE UNDER TEXAS LAW AND WITHOUT WAIVING ANY DEFENSES OF THE PARTIES UNDER TEXAS LAW.

- 3.3.11.1 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.
- 3.3.11.2 Contractor shall promptly advise Owner in writing of any claim or demand against Owner, **including but not limited to employees or other representatives of Owner**, or against Contractor which involves Owner and known to Contractor and related to or arising out of Contractor's activities under this Contract.

3.3.12 **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: (1) use of the product or service for a purpose or in a manner for which the product or service was not designed, (2) any modification made to the product without Contractor's written approval, (3) any modifications made to the product by Contractor pursuant to Customer's specific instructions, (4) any intellectual property right owned by or licensed to Customer, or (5) 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, (1) procure for the Customer the right to continue to use the affected portion of the product or service, or (2) 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.**
- 3.3.12.4.2 **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 **indemnification**, insurance and waiver of subrogation. Owner reserves the right to perform operations related to the Project with Owner's own forces.

3.3.14.1 **When separate contracts are awarded for different portions of the Project, "the Contractor" in the Contract Documents in each case shall be the Contractor who signs each separate Contract. The Contractor shall cooperate with the separate contractors and Texas Tech's own forces. This Contractor shall properly connect and coordinate its Work with the Work of the separate contractors as defined in these Contract Documents. If any part of this Contractor's Work depends for proper execution or proper results on the Work of any of the separate contractors, the Contractor shall inspect and promptly report in writing to the ODR any visually apparent discrepancies or defects found in such other Work that render it unsuitable for such proper execution and results. Failure of this Contractor to so inspect and report the visually apparent discrepancies or defects shall constitute an acceptance of the separate contractor's Work as fit and proper to receive the Contractor's Work, except as to defects which may develop in the separate contractor's Work after the execution of this Contractor's Work.**

3.3.14.2 **Should this Contractor cause damage to the Work or property of any separate contractor on the Project, this Contractor shall, upon due written notice, endeavor to settle with the separate contractor by agreement. If such separate contractor does not settle with this Contractor, Texas Tech shall initiate a dispute resolution process and each party to the dispute shall be financially accountable**

for any damages or loss based on their proportionate fault determined by the dispute resolution process.

- 3.3.14.3 **Texas Tech shall provide for coordination of the activities of Texas Tech's own forces and of each separate contractor with the Work of this Contractor, who shall cooperate with them. This Contractor shall participate with other separate contractors and Texas Tech in reviewing the respective construction schedules, when directed to do so. This Contractor shall make any revisions to its construction schedule as necessary, after receiving Texas Tech's instructions.**
- 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.
- 3.3.18 **This Contractor shall afford Texas Tech, the A/E, the separate contractors and Texas Tech's own forces, as necessary, with the reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their Work.**
- 3.3.19 **Protection of Existing Facilities. The Contractor shall take precautions to protect existing facilities and features within the designated construction limits and along the access to the construction Site. After materials, equipment and machinery are installed, the Contractor shall properly protect all Work until substantial completion is issued by Texas Tech and the A/E. Any damages incurred as a result of the Contractor's negligence shall be repaired by the Contractor without cost to Texas Tech, whether the repair is made with the Contractor's own materials and labor or by others under his directions.**

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, Chapter 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 at:
<https://www.tfc.texas.gov/divisions/facilities/prog/construct/formsindex/> (titled “HUB Subcontracting Plan Progress Assessment Report (HUB-PAR)” in the Forms Index 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, Chapter 2253. On Construction Manager-at-Risk and Design-Build Projects the Owner shall require a security bond, as described in **Article 5** 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. **Contractor must submit a five (5) percent security bond with their RFP.**
- 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, Chapter 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).

5.1.9.1 **Each bond shall be executed by a corporate surety or corporate sureties that are on the approved list of the United States Department of Treasury, Fiscal Service (Dept. Circular 570 latest edition) "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and Acceptable Reinsuring Companies," Sections 9304 through 9308 of Title 31 of the United States Code, as amended or modified. Surety Companies Acceptable on Federal Bonds and duly authorized to do business in the State of Texas, on forms approved by the Attorney General of Texas. All sureties must be acceptable to Texas Tech. Attorneys-in-fact who sign Proposal/Bid Bonds or Contract Bonds must file with each bond a certified and effectively dated copy of their power of attorney.**

- 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. **Once Substantial Completion is reached, insurance required under this provision will no longer be considered an approved general condition on the project; however, nothing herein shall alter the Contractor's obligation to maintain insurance as provided herein.**

- 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.
- 5.2.6.1 Insurance Coverage Required.
- 5.2.6.1.1 Workers' Compensation. Insurance with limits as required by the Texas Workers' Compensation Act (**Part A**), with the policy endorsed to provide a waiver of subrogation as to Owner, employer's liability insurance (**Part B**) of not less than:
- \$1,000,000 each accident;
- \$1,000,000 **by** disease each employee; and
- \$1,000,000 **by** disease policy limit.
- 5.2.6.1.2 Commercial General Liability Insurance (**CGLI**). Including premises, operations, independent contractor's liability, **pollution (contamination, cleanup, and disposal)**, 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 (**per Project**);

\$300,000 Damage to Premises Rented to You; and

Coverage shall be on an "occurrence" basis. **Claims-made forms are not acceptable.**

Unless covered by a separate policy, CGLI coverage shall include coverage extended to apply to **pollution (if approved by Owner)**, explosion, collapse, and underground hazards. The policy shall include endorsement CG25030**509** 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.

5.2.6.1.3

Contractors Pollution Liability Insurance, including coverage for bodily injury, property damage, business interruption, crisis management, transportation liability, as well as cleanup costs associated with toxic materials and/or hazardous pollutants.

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

Minimum limit requirement of coverage may increase based on scope and magnitude in the sole and complete discretion of the Owner.

5.2.6.1.4

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 **\$5,000,000** 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:

\$1,000,000 each accident;

\$1,000,000 disease each employee; and

\$1,000,000 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.

Business 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 occurrence. No

aggregate shall be permitted for this type of coverage.

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

5.2.6.1.5 **All-Risk Builder's Risk Insurance (Special Form Builder's Risk Insurance)**, if applicable (or all-risk installation floater for instances in which the project involves solely the installation of material and/or equipment). Coverage shall be all-risk, including, but not limited to, fire, extended coverage, vandalism and malicious mischief, theft and, if applicable, flood, earth movement and named storm, **and include terrorism coverage per TRIA 2002**. Builder's Risk and installation floater limits shall be equal to **one hundred (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:

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

5.2.6.1.5.2 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.

5.2.6.1.5.3 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.

- 5.2.6.1.5.4 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.
- 5.2.6.1.5.5 For Owner furnished equipment or materials that will be in care, custody or control of Contractor, Contractor will be responsible for damage and loss.
- 5.2.6.1.5.6 For those properties located within a Tier 1 or 2 windstorm area, named storm coverage must be provided with limits specified by Owner.
- 5.2.6.1.5.7 For those properties located in flood prone areas, flood insurance coverage must be provided with limits specified by Owner.
- 5.2.6.1.5.8 Builder's **Risk** insurance policy shall remain in effect until Substantial Completion.
- 5.2.6.1.6 "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 **is lacking, or** limits are insufficient or exhausted.

5.2.6.1.6.1 The Contractor shall provide, at a minimum, the following Coverage Limits:

- a. When Contract Amount is \$3,000,000 or less, an Umbrella Policy of \$3,000,000 each occurrence and \$3,000,000 annual aggregate.**
- b. When Contract Amount is greater than \$3,000,000, but less than \$5,000,000, an Umbrella Policy of \$5,000,000 each occurrence and \$5,000,000 annual aggregate.**
- c. When Contract Amount exceeds \$5,000,000, an Umbrella Policy of \$10,000,000 each occurrence and \$10,000,000 annual aggregate.**

5.2.7 Policies must include the following clauses, as applicable:

- 5.2.7.1 Policy must be endorsed by the carrier to provide thirty (30) days written notice in the event of cancelation, material change, or non-renewal.**
- 5.2.7.2 It is agreed that Contractor's insurance shall be endorsed to be to primary and non-contributory with respect to any insurance or self-insurance carried by Owner for liability arising out of operations under the Contract with Owner.**
- 5.2.7.3 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. Policies must be endorsed to add Owner as additional insured for ongoing operations and completed operations. This is not applicable to workers' compensation policies.**

5.2.7.4 Policies must be endorsed to provide a waiver of subrogation in favor of Owner.

- 5.2.8 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.
- 5.2.9 Workers' compensation insurance coverage must 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.
- 5.2.10 **The furnishing of the above listed insurance coverage, as may be modified by Supplementary General Conditions or Special Conditions, must be tendered prior to execution of the Contract, and in no event later than ten (10) days from Notice of Award. Failure to provide the insurance in a timely fashion may result in loss of Contractor's bid bond. The Contractor shall not commence the Work until it has obtained all required insurance and "certificates of insurance" and copies of all policies and endorsements have been filed with and reviewed by Texas Tech. Acceptance of this information by Texas Tech shall not relieve or decrease the Contractor's liability. All required insurance must list Texas Tech as Additional Insured.**

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, **electronic copies of the Construction Documents.**
- 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 (**or Owner's property if the rights to the instruments of service have been conveyed to the Owner**). 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 **unless otherwise specified in the A/E Contract.**
- 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.
 - 6.1.6.5.1 **Clarification(s) of project scope shall be requested from the A/E in the form of Requests for Information (RFI). Failure to consult with the ODR and A/E does not release the Contractor from their contracted responsibilities to complete the Work to Texas Tech's satisfaction.**
- 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.
- 6.2.5 Once determined acceptable by ODR with input from A/E, provide electronic media **copies** 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 (SDSs) 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 SDSs 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.

7.6.1 **All trench excavations shall be performed in full compliance with OSHA Regulations. It is the Contractor's responsibility to comply with any additional requirements resulting from any Preconstruction Conference relating to coordination of geotechnical investigation subjects.**

- 7.7 **Hazardous Contaminates.** Soil or other materials to be imported for use on any Texas Tech University System Project must meet the Requirements set forth by the U.S. Environmental Protection Agencies Resource Conservation and Recovery Act (EPA RCRA) Regulation as stated under 40 CFR 261.24 (which covers the Toxicity Characteristic for the listed chemicals). The testing of the soil or other materials will show these constituents through the TCLP testing method (metals and pesticides), BTEX testing method (volatile organic compounds), and TPH testing method (Total Petroleum Hydrocarbon). Other variables may come into consideration and depending on the source of the soil material we may require other tests as necessary.

The link to the maximum concentration of contaminants for the toxicity characteristic is

<http://www.gpo.gov/fdsys/granule/CFR-2011-title40-vol26/CFR-2011-title40-vol26-sec261-24>.

If upon discovery of these hazardous contaminants, the Contractor is responsible for notifying Texas Tech and providing their intent for removal of the contaminants.

- 7.8 **Some metal components may have inherently hazardous characteristics or contain hazardous characteristics. The metals of interest are the eight listed by the Resource Conservation and Recovery Act (RCRA): arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. The Contractor is responsible for following all Environmental Protection Agency Laws when disposing of these potentially hazardous metals to prevent leaching and contamination of underground water supplies.**

Upon discovery of these metals, the Contractor is responsible for disclosing to Texas Tech their intent for removal of the metal components. The Contractor may retain the metal for reuse, or otherwise accept the metal components as salvageable property. The items may also be sent to a metal's recycler. Whichever option is chosen, the Contractor must inform Texas Tech of their intentions, in writing, prior to the start of the project. The Contractor must indicate their proposed method for disposal or recycle. If the recycling option is elected, the types and quantities of materials recycled must be reported to Texas Tech by providing copies of the weight tickets from the recycler.

If the recycling method is chosen, the Contractor is permitted to retain all recycling fees collected from their abatement work associated with project demolition or scheduled project materials removal, however, Texas Tech will not award additional compensation to the Contractor for their efforts associated with the removal of hazardous metal components from Texas Tech facilities or properties.

- 7.9 **Disposal of Fluorescent Lamps.** Some lamp tubes in fluorescent light fixtures may have materials inside them that would be classed as a hazardous waste. The Contractor is responsible for following all Environmental Protection Agency Laws when disposing of these potentially hazardous materials to prevent further depletion of the ozone and atmosphere. Texas Tech requires the Contractor to inform them in writing of their intention for removal and disposal of the hazardous waste materials. The options detailed below are acceptable means acknowledged by Texas Tech for the removal and/or recycle of hazardous gases:

- 7.9.1 If the Contractor intends to retain light fixtures for reuse, or otherwise accept the fixtures as salvageable property, the Contractor must inform Texas Tech of their intention, in writing, prior to the start of the project. In this case, there is no hazardous waste issue.
- 7.9.2 If the Contractor does not wish to retain the light fixtures as salvageable property, the Contractor will be required to carefully remove the fluorescent lamps and ballasts from the light fixtures so as not to break any fluorescent lamps and place them in containers provided by the Texas Tech. The containers shall be stored in a location and manner to prevent spillage, tampering, damage, or exposure to weather or other potentially detrimental conditions. Upon notification of the completion of the collection process, Texas Tech will schedule for pickup of the containers and make proper disposition of them. The remainder of the light fixture shall be recycled by the Contractor as a painted metal surface.

- 7.10 **PCB Light Ballasts.** The Texas Department of Health will not authorize the disposal of light ballasts containing PCB's or small PCB capacitors in municipal landfills. If a light ballast is not labeled "No PCB's", then it must be considered as having PCB's and must be disposed of as follows:
- 7.10.1 If, upon acknowledgement from Texas Tech the Contractor intends to retain the light fixture for reuse, or otherwise accept the fixtures as salvageable property, there are no hazardous waste requirements. Before removing the light ballasts from the campus, the Contractor shall provide a letter, addressed to Texas Tech stating their intention to reuse or recycle the light ballast.
 - 7.10.2 Light fixtures that are not accepted for salvage by the Contractor are to have the ballast removed by the Contractor and returned to Texas Tech for recycle/disposal/salvage or reuse. All such ballasts will be placed in Contractor-provided open-top 55-gallon metal drums (DOT / UN reference marking 1A2/Y1.2/100) by the Contractor and delivered to Texas Tech for disposal as directed by the Project Manager at the time of the Preconstruction Conference. The remainder of the light fixture shall be recycled by the Contractor as a painted metal surface.
 - 7.10.3 For the purpose of construction projects at Texas Tech all fluorescent lamps associated with renovations or maintenance construction projects of Texas Tech facilities shall be considered to contain hazardous materials.
- 7.11 **Fire Protection Procedures.** Contractor shall maintain compliance with all Life/Safety Code requirements throughout the duration of the Construction Contract and take precautions to prevent potential fire hazards at the jobsite. Contractor shall adhere to the preventative fire protection procedures of the authorities having jurisdiction (e.g., Texas Tech Fire Marshal) and instruct all associated Subcontractors, skilled tradesmen, contractors, material men, suppliers and/or laborers of the procedures for preventative fire measures.
- 7.12 All campuses of the Texas Tech System are designated 'Smoke Free' environments. Due to State health, sanitation and safety regulations, tobacco products are not permitted to be consumed by construction personnel in any Texas Tech facilities, occupied or unoccupied, including mechanical and other service spaces within the Texas Tech System. Care shall also be taken to avoid smoking near outside air intakes. The General Contractor shall be responsible for enforcing this policy on the construction Site.

- 7.13 **The Contractor shall not operate Owner's existing equipment without Owner's prior written consent. When operation is necessary to accomplish the Work of the Contract, the Contractor shall notify the ODR who will arrange for Texas Tech personnel to operate the equipment.**

Article 8. Quality Control

- 8.1 **Materials & Workmanship.** Contractor shall execute Work in a good and workmanlike manner 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.
- 8.1.1 **Texas Tech reserves the right to observe, at their sources or on the Project Site or any off-site storage location, all materials, supplies or services not manufactured or performed within the Contractor's on-site facility. Such observation shall not constitute acceptance, nor shall it replace a Contractor's responsibility to furnish acceptable materials.**
- 8.1.2 **Materials Procurement.** The Contractor shall order and schedule delivery of materials expeditiously to avoid delays in construction and maintain the Baseline Schedule for project delivery. If an item is found to be unavailable, Contractor shall notify the A/E immediately to permit mutual selection of suitable substitute(s). If Contractor fails to order materials in ample time to avoid delays in construction, an approved material shall be substituted at no extra cost to Texas Tech. Or, at the A/E's discretion, approval of a substitute will be given only upon agreement by the Contractor to remove substituted material at a later date agreeable to Texas Tech and replace it at Contractor's expense with material originally specified. Such approval shall be subject to the same terms as for "Substitutions".
- 8.1.3 **Manufacturer's Instruction.** All manufacturer's articles, materials and equipment shall be applied, installed, connected, erected, secured, used, cleaned, and put in operation as recommended, instructed, directed or specified by the manufacturer, for the specified type of installation.
- 8.1.4 **Materials Storage.** The Contractor will be allowed space on the grounds for the storage of materials, but the Contractor shall provide all necessary enclosures, doors and locks, and shall be solely responsible for the safekeeping of all materials, tools, etc., stored therein. Such storage facilities shall be moved when so directed by the A/E or ODR at the Contractor's expense. After completion of the Work, storage facilities and all connected utilities shall be completely removed, and all materials taken from the premises.

- 8.1.5 **Building Codes and Standards.** Design, materials, and construction shall conform with applicable requirements of the most current adopted editions by the local municipality (unless noted otherwise) and the State Energy Conservation Office (SECO).
- 8.1.6 In instances of conflict between the building codes and standards mentioned above, the Code or Standard having the more stringent requirement(s) shall govern over the other codes and/or standards. All standards derived from conformance with the building codes and standards documents listed in the REFERENCE STANDARDS attachment shall be considered as comprehensively included in the Contract Sum. Requests for additional compensation by the Contractor to resolve code discrepancies will not be permitted for changes to make the Work comply with the regulations of the documents mentioned previously. Nothing in the Construction Documents should be construed by the Contractor as a permit to perform Work not in conformance with the aforementioned building codes and standards.
- 8.1.7 **Contractor Quality Control.** Contractor is responsible for the quality of the Work as set forth in the Contract Documents.
- 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.
 - 8.2.3.7 **Contractor's Testing. Nothing contained herein is intended to imply that the Contractor does not have the right to have tests performed on any material at any time for its own information and job control so long as Texas Tech is not charged for costs or forced to rely upon such tests when appraising quality of materials. Any modification of, or elaboration on, these test procedures which may be included for specific materials under their respective specification sections shall take precedence over these procedures.**
- 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 **observe**, 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) days duration after receipt by A/E and ODR for review and approval. If re-submittal required, allow a minimum of an additional fifteen (15) 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.
- 8.3.1.5 **Submittals defined include Conditions of Site reports, Contractor's Construction Schedule(s), Contractor's Submittal Schedule(s), Product Data, Shop Drawings, Samples and Options Selections, Integrated Drawings, Field Reports, Certificates of Compliance, Project Photographs, Electronic 'as built' drawings, Requests for Information (RFI) and Change Requests (CR). The method of submission for review will be determined in the Preconstruction meeting. Upon receipt of the submittals, shop drawings, samples manufacturer's information and other documentation, the A/E will review items for**

accuracy and conformance to the project Construction Documents, within the allocated time frame agreed to by the A/E and Texas Tech.

8.3.1.5.1 Distribution of copies to A/E, Texas Tech and Contractor's Subcontractors, suppliers, and manufacturers is to be provided by the Contractor.

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.

8.3.2.1 Contractor's Responsibilities. Contractor's responsibility for errors and omissions in submittals is not relieved by the A/E's and Texas Tech's reviews of submittals. Contractor's responsibility for deviations in submittals from requirements of Construction Documents is not relieved by the A/E's and Texas Tech's reviews of submittals, unless A/E and Texas Tech give written acceptance of specific deviations. The Contractor must provide notice to the A/E and ODR, in writing at time of submission, of deviations in submittals from requirements of Contract Documents, including, if applicable, notification of changes in the Work as required by Article 3 of the Uniform General Conditions and Supplementary General Conditions.

8.3.2.2 The A/E will note discrepancies, substitutions, and inaccuracy. Upon receipt of items related to interior finishes, the A/E will promptly forward those items to Texas Tech's ODR, prior to the A/E's review, so that interior finishes reviews are expedited by Texas Tech. Once the A/E has completed formal review, the A/E is responsible for uploading the final approved Submittal in e-Builder.

- 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 **Article 8**. Construct all such Work in accordance with reviewed submittals. Comments incorporated as part of the review in **Article 8** 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.
- 8.3.4.1 **Shop Drawings will be marked with Texas Tech's project name, project number, and pages numbered consecutively. Each detail and drawing will give reference to appropriate sheet and detail number from Contract Documents. Prior to the A/E's review, Shop Drawings shall be reviewed by Contractor and shall bear his stamp stating drawing has been checked for conformance with the Contract Documents, pending the A/E's review. Any drawings submitted without Contractor's stamp will not be considered. If shop drawings show variations from requirements of Contract because of standard shop practice or other reason, Contractor shall make mention of such variation in his letter of transmittal. The Contractor will not be relieved of responsibility for executing the Work in accordance with the Contract even though such Shop Drawings have been reviewed. Shop Drawings will not be considered approved unless the Contractor, A/E and Texas Tech's stamps appear on them.**
- 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 **paragraph**. 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.

8.3.7 **Product Data. Product Data will be marked with Texas Tech's project name, project number, and pages numbered consecutively. Clearly mark each copy to identify pertinent materials, products, or models. Show dimensions and clearances required. Show performance characteristics and capacities. Show wiring diagrams and controls. Product data includes standard information on materials, products, and systems; not specifically prepared for this project, other than the designation of selections from among available choices printed therein. Product Data shall be submitted at one time in sufficient copies to the A/E for approval and transmittal to Texas Tech for review.**

8.3.7.1 **The Contractor shall submit Material Safety Data Sheets (SDS) for all materials provided, installed, and/or utilized in this Project for review by the A/E and Texas Tech or its designated representative. The Contractor will not be permitted to bring any material(s) onto Texas Tech University System property until the A/E and Texas Tech have reviewed such SDS information and are satisfied the materials(s) are in compliance with Applicable Laws, ordinances, regulations, and policies. The A/E's and ODR's review of SDS information shall not constitute acceptance, nor shall it release the Contractor from its obligation to furnish acceptable materials.**

- 8.3.8 **Samples.** Samples will be marked with Texas Tech's project name and project number and include a label indicating generic name of item, manufacturer's name and model number, brand name, supplier's name and the Subcontractor's name for which material is intended. Contractor shall accompany each shipment of samples with a transmittal referencing project for which intended and listing sample data enumerated above for each sample transmitted and referencing samples to appropriate contract drawing sheet or to Specification Division. Approval of any sample will be only for characteristics or for uses named in such approval and for no other. Approval of a sample shall not be taken to change or modify any Contract requirements. When a material has been approved, no change in brand or make will be permitted. Materials and products on the job to be installed in the project shall be in original containers and bear the original labels of approved samples. The A/E and Texas Tech, at their sole discretion, may retain certain approved samples for reference and catalog. Contractor shall submit color samples in same manner as for material samples and in one package at one time.

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.
- 8.4.1.4 **Mock-ups samples shall be submitted as required by the Specification Division. The approved mock-up samples shall be dated, initialed by persons present for approval, clearly identified, and remains protected on the jobsite until project completion and acceptance. Contractor's**

failure to protect and maintain the approved samples shall not relieve him from the responsibility of furnishing and installing finish brick, pavers, or mock-ups to the satisfaction of Texas Tech's ODR.

8.4.1.5 All proposed substitution of materials, equipment or fixtures shall be presented through the submittal process.

8.5 Observation 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.

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 **observation** 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 **observation**. Should ODR fail to make the necessary **observation** 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.

8.5.3 Owner Quality Assurance.

8.5.3.1 **Texas Tech will make visits to the Site to confirm Project progress and quality of the Work, conduct observations and tests and to determine if the Work is proceeding in accordance with the Contract Documents. The Contractor shall provide sufficient, safe and proper facilities at all reasonable times for observation of the Work by the authorized representatives of Texas Tech.**

8.5.3.2 **Texas Tech, ODR, or the A/E may employ one or more special inspectors to provide inspections during construction on the types of Work listed under Section 1704 of the International Building Code.**

8.6 Condemnation and Removal of Defective Work.

- 8.6.1 The Owner has the authority to reject and condemn Work which does not meet the requirements of the Contract Documents and to order such Work removed and replaced in accordance with Article 8. Failure of the Owner to reject the Work does not relieve the Contractor from the responsibility to correctly perform the Work in accordance with the Contract Documents.**
- 8.6.2 If any materials or Work furnished under this Contract are condemned by Texas Tech, the Contractor shall, after notice from Texas Tech, proceed to remove materials, whether worked or unworked, and to take down all portions of the Work condemned. Contractor shall make good all Work damaged or destroyed by the removal and replacement process.**
- 8.6.3 Upon notice of condemnation, the Contractor may request to prove to Texas Tech, at Contractor's sole cost, that the Work should be accepted because it meets performance, and other relevant standards. Texas Tech shall respond to Contractor's showing of proof in writing.**
- 8.6.4 Should Work be identified by either the A/E and/or Owner as not being in compliance with the Contract Documents, such Work shall be corrected by the Contractor at its expense. The approval of Work by either the A/E and/or the Owner's , or their failure to reject Work, does not relieve the Contractor from compliance with all requirements of the Contract Documents.**
- 8.6.5 The Contractor shall, without charge, replace any material or correct any workmanship found by Texas Tech not to conform to the Contract requirements, unless in the public interest Texas Tech consents in writing to accept such material or workmanship with an appropriate adjustment in the Contract Sum. The Contractor shall promptly correct all Work rejected by Texas Tech as defective or as failing to conform to the Contract Documents, whether observed before or after the Date of Substantial Completion or Final Inspection and acceptance and whether or not fabricated, installed, or completed. The Contractor shall bear all costs of correcting such rejected Work. Any back charge to a Subcontractor must be documented with a CCP (see Article 11).**
- 8.6.6 If the Contractor does not promptly replace rejected material or correct rejected workmanship, Texas Tech may, (1) by contract or otherwise, replace such material or correct such workmanship and**

charge the cost thereof to the Contractor, (2) terminate the Contractor's Agreement, or (3) take any action Texas Tech deems appropriate.

Article 9. Construction Schedules

- 9.1 Contract Time. 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 **and Final 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), **longest duration**, with fully editable logic. This initial schedule shall indicate the dates for starting and completing the various aspects required to complete the Work, including **submittals**, mobilization, procurement, installation, testing, inspection, **commissioning, installation of Owner installed IT/AV equipment, functional testing of all systems, TAB, Owner installed equipment and furnishings, training**, 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 **file of the software (i.e., XER, XML, XLR, PPM), and as a PDF** 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 re-submit 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 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 **ensure** timely completion of the entire Work or a separable portion thereof, Contractor, when so informed by Owner **in writing**, 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 **Owner**, Contractor shall notify **Owner** in writing of the specific measures taken and/or planned to increase the rate of progress. Contractor 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 **Owner** 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 **Owner'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 critical path Work is to be done, and on which inclement weather and related Site conditions prevent Contractor from performing seven (7) continuous hours of Work 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 **Owner** 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. **The "Weather Days" claimed shall be compared to the weather day allowances included in the specifications and any day in excess of the stated number of normal weather days shall be allowed as an additional day for the month in question.** Based on written 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 **Change Directive (as defined in Article 11)** for fair and reasonable time extension.

9.6.2.2 Excusable Delay. Contractor **may be** entitled to an equitable adjustment of the Contract Time, issued via **Change Order**, for delays to the critical path 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 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.
 - 9.6.2.2.4 Suspension of Work for unexpected natural events (sometimes called "acts of God"), civil unrest, strikes or other events which are not within the reasonable control of Contractor.
 - 9.6.2.2.5 Suspension of Work for convenience of ODR, which prevents Contractor from completing the Work within the Contract Time.
- 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 **Article 9** 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 **Article 9** 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 **Owner** 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. Contractor's failure to substantially complete the Work within the Contract Time or to achieve Substantial Completion **and Final 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 Agreement or Special Conditions.

Article 10. Payments

- 10.1 Schedule of Values. Contractor shall submit to **Owner** 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 **Owner**. 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 **Owner**, 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 **Owner** 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.
- 10.1.3 **The Contractor shall not change the Schedule of Values or breakdown of the Contract Price once the Schedule of Values has been approved. Changes can only be made with written approval from the Owner.**
- 10.1.4 **All expended contingencies and allowances will be tracked on the Schedule of Values and in e-Builder.**

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. **Provide an updated HUB Subcontracting Plan with the fifty (50) percent and one hundred (100) percent Progress Payments.**

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 **Owner** 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 **Article 4**;

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;

10.2.1.5 Construction payment affidavit;

10.2.1.6 **An estimate of the amount of Contractor billing for the next three (3) months; and**

10.2.1.7 **State of Texas Construction Voucher.**

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 **Owner** will meet with Contractor to review the preliminary pay worksheet and to observe the condition of the Work. Based on this review, **Owner** 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 **Owner**. Attach all additional documentation required by **Owner** 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, Chapter 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 **Owner**. 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 **Owner** of: (1) a complete Application for Payment **accepted by the Owner** and 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, Chapter 2252, Subchapter 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 **Article 12** or Work package delineated in the Contract Documents, must be completed before **ODR** 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 **ODR** under this subsection, unless otherwise acceptable to **ODR**.
- 10.3.2.4 **Upon Final Completion and Texas Tech's acceptance of all of the Work covered in the Contract Documents, delivery of a complete release of all liens arising out of the Contract, and any audit required by the Agreement has been completed and all issues resolved, ODR will release the retainage to the Contractor, minus any amounts that Texas Tech is otherwise entitled to withhold.**
- 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.
 - 10.3.3.8 **Failure to furnish all Close Out documents as required by the Contract Documents.**
 - 10.3.3.9 **For Contracts with a value of less than \$25,000 for which no payment bond is posted, receipt of written notice by Texas Tech of unpaid bills, filed in conformance with Chapter 53 of the Texas Property Code. Any funds so withheld shall be released to the Contractor if it furnishes a**

**bond for release of lien as provided in §53.236, Texas
Property Code.**

- 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 Punchlist 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 **Owner** 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**.

- 10.5.3 **Observation by Owner** is allowed at any time. Owner 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 **Owner** 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**, 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.
- 10.5.9 **Upon Owners request, Contractor shall submit photographs of the stored materials.**
- 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 (10th) day after the date the vendor receives the payment.
 - 10.6.2 The appropriate share is overdue on the eleventh (11th) day after the date Contractor 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, **with A/E review**, authorizing a change in the Work for an adjustment **to** the Contract Sum or the Contract Time. The Contract Sum and the Contract Time can only be changed by Change Order **via Agreement Amendment process**. A Change Order signed by Contractor indicates his agreement therewith, including the adjustment in the Contract Sum and/or the Contract Time. **The** 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 **Article 11**.
- 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 Contract Time **may** be adjusted accordingly. All such changes in the Work shall be authorized by **CCP, Change Directive, or** Change Order 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 **consistent with requirements of the Agreement and any Special Conditions with regard to adjustments in the Contract Sum or Contract Time** shall be made and confirmed in writing **via a CCP, Change Order, or Change Directive**.
- 11.1.2 It is recognized by the parties hereto and agreed by each 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 **all** 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, Chapter 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.

11.1.3.1 **Effect of a Proposed Change Order conversion to a Change Order.** Except as to scope and adjustments proposed by the Contractor in a CCR that were accepted by the Owner in the CCP, the issuance of a CCR does not prejudice any of the Contractor's rights to relief otherwise available under the Contract Documents. However, if the CCR directs a change in the Work for a stated adjustment, if any, in the Contract Sum and/or Contract Time to which the Contractor objects, the Contractor must preserve such rights by submitting a written objection to the CCR, identifying with specificity the scope and adjustments to the Contract Sum and Contract Time to which Contractor objects, within fifteen (15) days of receipt of the CCP approval. If the Contractor does not submit a written objection within that time, Contractor shall be deemed to have accepted the terms of the CCR and the approved CCP as to the terms stated therein shall have the full force and effect of a Change Order.

11.1.3.2 **Submission of a Change Order.** Any directed change in scope effecting a Contingency or the Agreement Contract Sum or Contract Time must start in e-Builder as a Construction Change Proposal (CCP). A Change Order affecting Contract Sum or Contract Time must be executed as an Agreement Amendment to the Contract Documents. The ODR may issue a Change Directive to the Contractor while the formal Amendment to the Agreement is routing through the approval process. The Contractor shall be formally authorized to commence with begin the Work upon receipt of the executed Amendment or a Change Directive. Either the Contractor or the Owner may start this process which will adjust one of the Contingencies or the Contract Sum or the Contract Time. The CCP must include:

- CCR Scoping Documents;
- A description of the required change;

- The proposal is to include detailed line-item values for material and labor costs, including labor burden;
- Itemized documentation of any Subcontractor costs;
- Markups to adhere to Article 11; and
- Schedule impact.

11.1.3.3 **Execution of a Change Order.** Not more than thirty (30) days following the issuance by the Owner of the CCR and the approval of CCP, or the deemed effective date pursuant to Article 11, the Owner shall issue a Change Order, executed by the ODR attaching a copy of the accepted CCP and incorporating it fully by reference. The Contractor shall execute the Change Order within ten (10) days of receipt. The execution of a Change Order by the Owner, Contractor, with A/E review constitutes the full, final, and complete settlement of all claims with regard to the modifications contained in the Change Order for foreseeable impacts on the Contract Sum or the Contract Time; provided, however, that a Change Order may be reformed by a written modification signed by the ODR and Contractor, for the limited purpose of correcting an error in computation.

11.1.4 **GMP Buyout Process.** As the Contractor executes the Buyout process for the project, the Contractor shall enter each Subcontractor recommendation for every specification division into e-Builder as a CCP process committing the GMP budget to the actual cost of the Work recommended by the Contractor. The differences will be tracked in the Buyout Contingency throughout the Buyout process. Once the Buyout process is complete, any net savings to the project will be transferred to the Owner using a CCP process where the Buyout Contingency is reduced by the amount of savings and the Owner's Contingency account is increased by the same amount. If there are no savings and there is actually a loss, the loss will be transferred to the Contractor's Contingency (CM) account, so the final Buyout Contingency account is net zero. The GMP Buyout Process does not apply to CSP delivery method.

11.1.5 **Use of Contingencies and Allowances.**

- 11.1.5.1 **Effect of a Contractor's Contingency (CM) adjustment.** The Contractor shall start any request to spend Contractor's Contingency (CM) in e-Builder as a CCP process. This request shall route through e-Builder and once approved by Owner in writing, the Contractor will be authorized to use the CM Contingency.
- 11.1.5.2 **Owner-Initiated Changes.** The 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. When the Owner wishes to order changes in the Work, the Owner shall submit to the Contractor, via the Design Professional, a Construction Change Request (CCR), consisting of a description of the request, including such Drawings and Specifications as are reasonably necessary to inform the Contractor of the nature of the change. Within twenty-one (21) days of receipt of the Owner's CCR, the Contractor shall submit a Construction Change Proposal (CCP) to the Owner in e-Builder, stating that the proposed change is a no-cost change, or propose an adjustment in the Owner's Contingency or Contract Sum, and that the result of the proposed scope change will not require an adjustment in the Contract Time, or propose an adjustment in the Contract Time, as provided under Article 11. All CCP documentation uploaded into e-Builder shall include the issued CCR scoping documents as part of the CCP process.
- 11.1.5.3 **Contractor-Initiated Changes.** If the Contractor claims it will incur additional cost or time because of any written instruction or interpretation of the Contract Documents, or instruction concerning the execution of the Work, issued by the Owner or the A/E, and constituting a change in the scope of the Work, the Contractor may request a Change Order pursuant to this Article and, if appropriate, a time extension request as provided by Article 9. When the Contractor considers that any written instruction or interpretation of the Contract Documents issued by the Owner or the Design Professional constitutes a change in the Work affecting the Contract Sum, the Contractor shall so notify the Owner as soon as possible, but not later than fifteen (15) days after receipt of the instruction or interpretation and shall submit a CCP to the Owner as

soon as possible thereafter, but not later than twenty-one (21) days after issuance of the notice. This CCP shall contain a proposal for an adjustment in the Contract Sum, as provided under Article 11. The CCP shall be accompanied by a copy of the writing containing the instruction or interpretation, evidence of the date the Contractor received the writing and an explanation of how the writing creates the need for a change, including all the changes as attributable to the schedule of values.

- 11.1.5.4 **Effect of an Owner's Contingency adjustment.** The Contractor or the Owner may start a CCP process for additional Work that will not change Contract Sum or Contract Time that will be funded by the Owner's Contingency.
- 11.1.5.5 **Use of Allowances.** Allowances are defined within the GMP by the Contractor and as agreed to by the Owner and A/E and scheduled within the original scope of the Work. Allowances can only be used to fund the Work in which they are allocated and must be utilized within the time frame apportioned for the GMP Buyout process. Requisition of Allowance funds must be performed in eBuilder via the CCP process, indicating the amount to be charged to the specific Allowance with comprehensive associated costs and detailing provided to validate the expenditure. Authorized use of funds from Allowances will include Contractor's related costs and authorized markup if applicable. Once the specific scope of Work for which the Allowance was designated is funded, but no later than by the end of the Buyout process, any unused amounts remaining in the Allowance shall be credited to Owner's Contingency via CCP. In the event there is a deficit of funding within an Allowance, the CM Contingency must fund the remaining balance to complete buyout of the Work in which the Allowance was allocated.
- 11.1.6 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.
- 11.1.7 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.

11.1.8 **Construction Change Proposals (CCP).** As soon as feasible (Owner will endeavor to respond no later than twenty-one (21) days after receipt of any CCP submitted by the Contractor), the Owner shall respond in e-Builder by either (1) accepting the Contractor's proposal in whole or in part, (2) rejecting the same, (3) initiating negotiations with the Contractor concerning the proposed cost adjustment, or (4) requesting additional information. The Owner may also respond in writing by specifying that the change will cause the Owner's Contingency to be exceeded and specifying that additional time is needed to process the change and receive necessary approvals. CCPs must include pricing for the complete scope of the Work as defined by the CCR. Once the Owner has approved the proposed submitted CCP in e-Builder, the Contractor has ten (10) days from the receipt of approval to execute the approved change. All costs and request for Contract Time are considered final after the ten (10) days have expired.

11.1.9 **Issuance of Change Directive.** In response to a CCP or otherwise, the Owner may order a change in the Work by issuing a written Change Directive. A Change Directive is effective upon receipt and constitutes the Contractor's notice to proceed with the changed Work and entitles the Contractor to submit the adjusted cost of the Work as stated in the Change Directive on succeeding Pay Applications, as it is completed.

11.1.9.1 **Change Directive Accepting CCP in Whole.** When agreement has been reached concerning the adjustment of the Contract Sum and Contract Time, if any, arising from the change in the Work, the Owner shall accept the Contractor's CCP, or any subsequently revised CCP issued pursuant to negotiation, by issuing a Change Directive or CCP to the Contractor setting forth the agreed

adjustments. The Contractor shall promptly execute a CCP reflecting its agreement to the terms set forth therein.

11.1.9.2 Change Directive Accepting CCP in Part. When the Owner does not agree to the proposed adjustment in the Contract Sum and/or the Contract Time in the CCP, the Owner may issue a Change Directive setting out the adjustments from the CCP, if any, in the Contract Sum and/or Contract Time accepted by the Owner and identifying any adjustments not accepted by the Owner. The Contractor shall promptly execute the Change Directive reflecting its agreement to the adjustments accepted by the Owner. In order to preserve its objections to any adjustments set out in the Change Directive, the Contractor must separately comply with Article 11.

11.1.10 Commencement of Work. The Contractor shall not commence Work on a change prior to receipt of a fully executed Change Order, approved CCP or authorized Change Directive as set out in this Article 11.

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 **Construction Change Request** 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 **Article 7**. 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.

- 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 **Article 11**, Contractor shall make such claim as provided in **Article 11**.
- 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 **Change Directive** 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 Owner, 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 affected 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, **Owner** and A/E shall be notified in writing of such conditions before they are disturbed. Upon such notice, or upon its own observation of such conditions, A/E, with the approval of **Owner**, 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 **Owner**.
- 11.6 Extension of Time. All changes to the Contract Time shall be made as a consequence of requests as required under **Article 9**, and as documented by Change Order as provided under **Article 11**.
- 11.7 Administration of Change Order Requests **and CCPs**. 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 **funded within the GMP Contract amount**, shall be formally initiated by A/E by means of a **Construction Change Request (CCR)** detailing requirements of the proposed change for pricing by Contractor. This action may be preceded by communications between Contractor, A/E, and **Owner** 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 **Owner** will be required for authorization (**CCP**) to proceed with the Work being changed. Owner will not be responsible for the cost of Work changed without prior **written** approval **via the e-Builder CCP** process and Contractor may be required to remove Work so installed.
- 11.7.2 All proposed costs for changes **in the** Work must be supported by itemized accounting of material, equipment, **labor, burden**, and associated itemized installation costs in sufficient detail, following the outline and organization of the established Schedule of Values, to permit analysis by A/E and **Owner** using current estimating guides and/or practices. **Digital PDF copies** of Subcontractor and vendor proposals shall be furnished unless specifically waived by **Owner**. Contractor shall provide written response to a change request (**CCR**) 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 **from the Contractor** 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, **Owner** 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 **CCR or** Change Order.
- 11.7.4 Emergency changes to save life or property may be initiated by Contractor alone (see **Article 7**) 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 **or CCPs** into the parameters of the accepted Schedule of Values must be coordinated and

administered in a manner acceptable to **Owner**. **Sufficient detailing of costs within the Schedule of Values for each approved Change Order or CCP, as requested by the Owner, must be provided to effectively track and audit expenditures for the specific scope of Work changes.**

11.7.5.1 Owner will incorporate Change Orders into the Contract by formal amendment, approved by both parties.

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. **To the extent that the Agreement or any Special Conditions set forth the terms for pricing any adjustments to the Contract Sum, the following terms are superseded by the terms and conditions in the Agreement or any Special Conditions.**

11.8.1 For Work performed by its forces, Contractor will be allowed their actual costs for materials, the total amount of wages 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 **Builder's 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. **The mark-up schedules below apply for all subcontracted Work. The grand total of the Change Order is the sum of all subcontracted proposals.**

11.8.1.1 For subcontracted Work being self-performed, the 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 **managing** 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 Owner and Contractor shall negotiate for appropriate adjustments, as applicable, to the Contract Sum or the Contract Time arising out of a **Change Directive**.
- 11.10 Final Resolution of Changes. Upon execution of a Change Order by Owner and Contractor, all costs and time issues regarding that change are final and not subject to adjustment.

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, a Certificate of Substantial Completion **will** be signed by A/E, **ODR**, and Contractor establishing the date of Substantial Completion and identifying responsibilities for security and maintenance. A/E will provide with this certificate a list of Punchlist items (the pre-final Punchlist) 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. 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 **Owner** 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, **Owner**, 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 **Owner** in writing stating the disposition of each final Punchlist item. A/E, Owner, and Contractor shall promptly inspect the completed items. 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, **Owner** 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 **Owner**. 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, **Owner** 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 **Owner**. 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 **CCP** 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 **Owner**, 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 and maintenance. 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.

12.2.1 Notice and Early Occupancy Proposal. If Texas Tech determines that operational disruption will result if it is unable to occupy some portion of the Work prior to Substantial Completion, it shall so inform the A/E and the Contractor no less than thirty (30) days before the date Texas Tech wishes to occupy the Work and designate those portions of the Work to be occupied and the uses to be made of the occupied premises (hereinafter "Early Occupancy"). Early Occupancy by Texas Tech does not imply or constitute Substantial Completion. As soon as practicable, but not less than five (5) working days after receiving this notice, the Contractor shall make the designated portions of the Work available to the A/E and Texas Tech for observation. The A/E and Texas Tech shall observe the Work jointly with the Contractor. As soon as practicable, the A/E shall prepare and submit to the ODR and the Contractor an Early Occupancy Proposal, specifying any Work that must be completed or corrected as well as any operation and maintenance manuals or other documentation necessary for the Work to be occupied by Texas Tech and used for the purposes designated by Texas Tech in its notice, and setting out the division of responsibility between Texas Tech and the Contractor for utilities, security, maintenance, insurance and liability for damage to the Work or damage arising from the condition of the Work.

12.2.2 Administration as Change Order. If the Owner requests Early Occupancy and the Contractor requests an equitable adjustment (cost and/or time) that is agreed upon by Owner due to the requested Early Occupancy and the Contractor fails to meet the mutually agreed upon Substantial Completion date, the Owner reserves the right to reject any equitable adjustments requested in the CCP by the Contractor. All cost and/or time adjustments requested by Contractor related to an Early Occupancy Proposal, shall be stated in the CCP and are subject to review and approval by the Owner. If Early Occupancy is requested by Owner due to Contractor's failure to meet Substantial

Completion as previously agreed upon, no time or equitable adjustments will be permitted related to the request for Early Occupancy.

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 the Application for Final Payment, final copies of all Close Out documents, maintenance, and operating instructions, guarantees and warranties, certificates, **As-Built 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, Chapter 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. **Final Payment is subject to the requirement that any audit required by the Agreement is complete and all issues are resolved.**

12.3.2.1 **FINAL PAYMENT SUBMISSION.** After FP&C's audit approval, submit certified copy to A/E who will forward to Texas Tech:

12.3.2.1.1 **Certificate of Substantial Completion (AIA Form G704);**

12.3.2.1.1.1 Certificate of Punchlist Completion on Architect's letterhead with a copy of the punch list attached.

- 12.3.2.1.1.2 All required documents and forms as outlined in Article 1 Application for Payment.**
- 12.3.2.1.2 **Change Orders;**
- 12.3.2.1.2.1 Incorporates Change Orders and deducts remainder of the Allowance from Contract amount.**
- 12.3.2.1.2.2 All Change Orders, back-up material, and authorizations**
- 12.3.2.1.3 **Consent of Surety Company for Final Payment, and**
- 12.3.2.1.4 **Submit State of Texas Construction Voucher marked ESTIMATE NO. _____, FINAL. Include HUB Vendors Subcontractor Payment Sheet indicating Final Submission.**
- 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 (21st) day after Owner's receipt of an approved Application for Final Payment. Such offsets and deductions shall be incorporated via a final Change Order **or Change Directive** 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 (30th) day following Owner's approval of the Application for Payment **subject to the requirement that any audit required by the Agreement is complete and all issues are resolved.** If Contractor disputes any amount deducted

by Owner, Contractor shall give notice of the dispute on or before the thirtieth (30th) 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. **The Contractor's General Warranty and Guarantee set out in this paragraph is in addition to and not exclusive of any other warranties or guarantees set out in the Contract Documents or implied under Applicable Law or the Contractor's obligations during the Warranty Repair Period as provided in Article 13 below.**

13.1.1 **In the case of Work performed by Subcontractors and where guarantees are required, the Contractor shall secure warranties from said Subcontractors addressed to and in favor of Texas Tech; deliver copies of same to Texas Tech upon completion of the Work; and guarantee and assume full responsibility for the full period of said warranties. Delivery of said guarantees shall not relieve the Contractor from any obligations assumed under any other provisions of the Contract. This warranty and guarantee are not the exclusive remedy of Texas Tech but is in addition to the general obligation of the Contractor to faithfully perform the Contract, and it in no way limits the responsibility of the Contractor for faulty materials or workmanship.**

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. **Owner** 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.

- 13.5.3 **FORMS FOR WARRANTIES AND GUARANTEES.** Prior to Final Payment, Contractor shall provide to the A/E searchable electronic copies (unscanned) of all warranties, guarantees, and bonds required in various sections of the Contract Documents. For equipment and component parts of equipment put into service during progress of construction, warranty will begin at the date of Substantial Completion, or at a time as negotiated in writing by Owner and Contractor. For items of Work where acceptance is delayed materially beyond the date of Substantial Completion, provide updated submittal within ten (10) days after acceptance listing the date of acceptance as the start of the warranty period. Where guarantees for periods beyond one (1) year from date of final acceptance of Work are required, such guarantees shall be written, and searchable electronic copies (unscanned) furnished to the A/E, on Contractor's letterhead using following format:

"GUARANTEE FOR _____

We hereby guarantee that the _____ which we have installed on the campus of _____, (insert the name of the respective Texas Tech constituent university or institution), has been done in accordance with the Contract Documents, and that the Work as installed will fulfill the requirements of the Guarantee included in the Contract Documents. We agree to repair or replace any or all of our Work, together with any other adjacent Work which may be displaced by so doing that may prove to be defective in its workmanship or materials within a period of (insert guarantee period) year(s) from date of acceptance of the above-mentioned structure by the Board of Regents of Texas Tech University System, ordinary wear and tear and unusual abuse or neglect excepted.

In the event of our failure to comply with the above-mentioned conditions within a reasonable time, which in no case shall be longer than thirty (30) days after being notified in writing by the Owner, we collectively or separately do hereby authorize the Owner to proceed to have said defects repaired and made good at our expense, and we will honor and pay the costs and charges therefore upon demand."

Signed _____
Subcontractor and/or Supplier

Countersigned _____

Prime Contractor

- 13.5.3.1 **Warranty and Guarantee periods shall commence on the date of the Certificate of Substantial Completion unless otherwise specified.**
- 13.5.3.2 **Form of Submittal. Provide searchable electronic copies (unscanned). Label tabs for each section with title "WARRANTIES, GUARANTEES AND BONDS", with title of Project; name, address, and telephone number of Contractor; and name of responsible principal. List 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 Product or Work item. 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.**
- 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, **but no later than thirty (30) days**, remedy the defect(s) **or advise Owner in writing as to the corrective action(s) to be taken**, 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, **ODR** 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 Owner;
 - 14.3.1.3 Persistent failure to **execute** 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, Chapter 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 **ODR** 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 **ODR** decide to terminate the Contract under the provisions of **Article 14**, 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 **ODR** 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 **ODR**. 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 **ODR** to commence and continue correction of such default with diligence and promptness to the satisfaction of **ODR** within thirty (30) days following receipt of notice, **ODR** 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 affect such assignment.

14.3.5.5 **When the Contract is terminated by Owner for cause, the Contractor will not be entitled to recover loss of anticipated profits or incidental damages.**

14.3.5.6 **If Owner sues the Contractor or Surety on account of failure to pay such difference in cost upon demand, the Contractor and Surety will pay all costs in connection therewith, including reasonable attorney's fees and expenses. These obligations for payment shall survive the termination of the Contract.**

- 14.4 Conversion to Termination for Convenience. In the event that any termination of Contractor for cause under **Article 14** is later determined to have been improper, the termination shall automatically convert to a termination for convenience under

Article 14 and Contractor's recovery for termination shall be strictly limited to the payments allowable under **Article 14**.

- 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 **ODR** 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.

14.7.1 **All settlements on termination shall be administered as Change Orders as provided under Article 11. If the Contractor and Owner fail to agree on the settlement amount, the matter will be handled as a dispute through administrative procedures set for the in Article 15.**

Article 15. Dispute Resolution

- 15.1 **Except to the extent Texas Civil Practices and Remedies Code (TCP) Chapter 114 applies to this Contract, NEITHER THE EXECUTION OF THE CONTRACT, ANYTHING IN THESE UNIFORM GENERAL CONDITIONS AND SUPPLEMENTARY GENERAL CONDITIONS, NOR ANY CONDUCT OF ANY REPRESENTATIVE OF TEXAS TECH UNIVERSITY SYSTEM OR ITS COMPONENT INSTITUTIONS SHALL WAIVE OR BE CONSIDERED A WAIVER OF SOVEREIGN IMMUNITY TO SUIT.**
- 15.2 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.
- 15.2.1 **A Contractor's claim for breach of this Contract that the Parties cannot resolve in the ordinary course of business shall be submitted to the negotiation process provided in Government Code, Chapter 2260, Subchapter B. To initiate the process, the Contractor shall submit written notice, as required by Subchapter B, to the Vice Chancellor for Facilities Planning and Construction with an additional copy to the Vice Chancellor and General Counsel. Said notice shall also be given to all other representatives of Texas Tech and the Contractor who are otherwise entitled to notice under the Agreement. Compliance by the Contractor with Subchapter B is a condition precedent to the filing of a contested case proceeding under Government Code, Chapter 2260, Subchapter C.**
- 15.2.2 **The contested case process provided in Government Code Chapter 2260, Subchapter C, shall be the Contractor's sole and exclusive process for seeking a remedy for an alleged breach of contract by Texas Tech if the Parties are unable to resolve their disputes in the ordinary course of business or under Article 15 of this provision, UNLESS, after considering the recommendation of the Administrative Law Judge, the Legislature grants the Contractor consent to sue under Chapter 107 of the Civil Practices and Remedies Code.**
- 15.3 **Suits Under TCP Chapter 114.** Interest on an award for breach of contract subject to TCP Chapter 114 shall not exceed the lesser of the amount due on overdue payments under Tex. Gov't Code Ch. 2251.025, or the post-judgment rate set forth in Tex. Fin. Code §304.003(c), or ten (10) percent. Service of

citation and other required process must be made on the Texas Attorney General and the Texas Tech University System Vice Chancellor and General Counsel. The conditions of TCPRC §107.002 (4), (5), (6), (7), (9), (10), (11), and (12) apply to any suits against Owner under TCPRC Chapter 114.

- 15.4 Alternative Dispute Resolution Process. Owner may establish a dispute resolution process to be utilized in advance of that outlined in Tex. Gov't Code, Chapter 2260 **or prior to filing a suit under TCPRC Chapter 114.**
- 15.5 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.
- 15.6 **Neither the occurrence of an event nor the pendency of a claim under this provision constitutes grounds for the suspension of performance by the Contractor, in whole or in part.**

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 **and Supplementary 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 **UGSC**, where necessary, provided the expansion does not weaken the character or intent of the **UGSC**. 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 **UGSC**.
- 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 statute, 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 and Supplementary General Conditions.

SECTION 00 43 43 AREA WAGE RATES SUMMARY

ATTACHMENT "A"
PREVAILING WAGE DETERMINATION
LUBBOCK COUNTY

Texas Tech University - Lubbock
Texas Tech University Health Sciences Center - Lubbock

DATE: JULY 2023
CONSTRUCTION TYPE: BUILDING
AREA: LUBBOCK COUNTY

| BUILDING CONSTRUCTION TRADE CLASSIFICATION | PREVAILING WAGE RATE* |
|---|--------------------------|
| Asbestos worker | \$16.00 |
| Carpenter | \$23.17 |
| Carpet/Floor Installer | \$18.00 |
| Concrete Finisher | \$19.60 |
| Datacomm/Telecom | \$20.00 |
| Drywall Installer | \$21.66 |
| Ceiling Installer | \$17.68 |
| Electrician-Journeyman | \$29.46 |
| Electrician-Apprentice | \$20.00 |
| Elevator Mechanic | \$34.88 |
| Glazier | \$20.00 |
| Heavy Equipment Operator | \$20.00 |
| Piping/Ductwork Insulator | \$20.00 |
| Iron/Structural Worker | \$24.77 |
| Laborer | \$16.00 |
| Lather/Plasterer | \$20.56 |
| Light Equipment Operator | \$18.80 |
| Mason/Bricklayer | \$23.95 |
| Painter | \$17.44 |
| Plumber/Pipefitter Journeyman | \$27.00 |
| Plumber Apprentice | \$19.23 |
| Roofer | \$19.00 |
| Sheetmetal | \$22.73 |
| Sprinkler Fitter | \$23.00 |
| Terrazzo Worker | \$20.00 |
| Tile Setter | \$18.34 |
| Waterproofers | \$20.00 |

*Gross Hourly Wage + Fringes (Benefits + Retirement + Vacation). Benefits include the employer paid portions of not only medical care, but – longer term disability, short term disability, dental care, vision care, and life insurance.

Unlisted classifications needed for work not included within the scope of the classifications listed may not be added after award. The job classifications are not inclusive of all possible trades on a construction project.

It is the responsibility of the contractor to classify the worker in accordance with the published classifications and demonstrate that workers are paid commensurate with determined rates.

SECTION 00 45 26 WORKERS COMPENSATION INSURANCE

PART 1. GENERAL

1.1 REPORTING REQUIREMENTS FOR BUILDING OR CONSTRUCTION PROJECTS FOR GOVERNMENTAL ENTITIES.

- A. DEFINITIONS: The following words and terms, when used in this rule, shall have the following meanings, unless the context clearly indicates otherwise. Terms not defined in this rule shall have the meaning defined in the Texas Labor Code, if so defined.
1. Certificate of coverage ("certificate") - A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, TWCC-84, or TWCC-85), showing statutory workers' compensation insurance coverage for the person's or entity's employees (including those subject to a coverage agreement) providing services on a project, for the duration of the project.
 2. Building or construction - Has the meaning defined in the Texas Labor Code, 406.096(e)(1).
 3. Contractor - A person bidding for or awarded a building or construction project by a governmental entity.
 4. Coverage - Workers' compensation insurance meeting the statutory requirements of the Texas Labor Code, 401.011(44).
 5. Coverage agreement - A written agreement on form TWCC-81, form TWCC-82, form TWCC-83, form TWCC-84, or form TWCC-85. filed with the Texas Workers' Compensation Commission which establishes a relationship between the parties for purposes of the Workers' Compensation Act, pursuant to the Texas Labor Code, Chapter 406, Subchapters F and G as one of employer/employee and establishes who will be responsible for providing workers' compensation coverage for persons providing services on the project.
 6. Duration of the project - Includes the time from the beginning of work on the project until the work on the project has been completed and accepted by the governmental entity.
 7. Persons providing services on the project ("subcontractor" in 406.096 of the Act) - Includes all persons or entities performing all or part of the services the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes but is not limited to independent contractors, subcontractors, leasing companies, motor carriers, owner operators, employees of any such entity, or employees of any entity furnishing persons to perform services on the project. "Services" includes but is not limited to providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.
 8. Project - Includes the provision of all services related to a building or construction contract for a governmental entity.
- B. Providing or causing to be provided a certificate of coverage pursuant to this rule is a representation by the insured that all employees of the insured who are providing services on the project are covered by workers' compensation coverage, that the coverage is based on proper reporting of classification codes and payroll amounts, and that all coverage agreements have been filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's

Division of Self-Insurance Regulation as outlined in Texas Labor Code, Chapter 407. Providing false or misleading certificates of coverage, or failing to provide or maintain required coverage, or failing to report any change that materially affects the provision of coverage may subject the contractor or other person providing services on the project to administrative penalties, criminal penalties, civil penalties, or other civil actions.

- C. A governmental entity that enters into a building or construction contract on a project shall:
1. include in the bid specifications, all the provisions of subsection (d) of this rule, using the language required by paragraph (7) of this subsection;
 2. as part of the contract, using the language required by paragraph (7) of this subsection, require the contractor to perform as required in subsection (d) of this rule;
 3. obtain from the contractor a certificate of coverage for each person providing services of the project, prior to that person beginning work on the project;
 4. obtain from the contractor a new certificate of coverage showing extension of coverage:
 - a. before the end of the current coverage period, if the contractor's current certificate of coverage shows that the coverage period ends during the duration of the project, and;
 - b. no later than seven days after the expiration of the coverage for each other person providing services on the project whose current certificate shows that the coverage period ends during the duration of the project;
 - c. prior to submission for monthly payment;
 5. retain certificate of coverage on file for the duration of the project and for three years thereafter;
 6. provide a copy of the certificates of coverage to the commission upon request and to any person entitled to them by law.
 7. use the following language for bid specifications and contracts, without any additional words or changes, except those required to accommodate the specific document in which they are contained or to impose stricter standards of documentation.
 - a. Copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, TWCC-84, or TWCC-85)), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

Duration of the project - includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity. Persons providing services on the project ("subcontractor" in 406.096) - includes all persons or entities performing all or part of the services the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes people to provide services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other services related to a project. "Services" does not include activities unrelated to the project, such as food/beverage

vendors, office supply deliveries, and delivery of portable toilets.

- b. The contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.
- c. The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract.
- d. If the coverage period shown on the contractor's current certificate of coverage ends during the duration of the project, the contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.
- e. The contractor shall obtain from each person providing services on a project, and provide to the governmental entity:
 - i. a certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and
 - ii. no later than seven days after receipt by the contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.
 - iii. prior to submission for monthly payment.
- f. The contractor shall retain all required certificates of coverage for the duration of the project and until the end of the warranty period.
- g. The contractor shall notify the governmental entity in writing by certified mail or personal delivery, within ten days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.
- h. The contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.
- i. The contractor shall contractually require each person with whom it contracts to provide services on a project, to:
 - i. provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, 401.011(44) for all of its employees' providing services on the project, for the duration of the project;
 - ii. provide to the contractor, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;
 - iii. provide the contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

- iv. obtain from each other person with whom it contracts, and provide to the contractor:
 - 1) a certificate of coverage, prior to the other person beginning work on the project; and
 - 2) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
- v. retain all required certificates of coverage on file for the duration of the project and until the end of the warranty period;
- vi. notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and
- vii. contractually require each person with whom it contracts, to perform as required by paragraphs (1)-(7), with the certificates of coverage to be provided to the person for whom they are providing services.
- j. By signing this contract or providing or causing to be provided a certificate of coverage, the contractor is representing to the governmental entity that all employees of the contractor who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation as outlined in the Texas Labor Code, Chapter 407. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.
- k. The contractor's failure to comply with any of these provisions is a breach of contract by the contractor which entitles the governmental entity to declare the contract void if the contractor does not remedy the breach within ten days after receipt of notice of breach from the governmental entity.

D. A contractor shall:

- 1. provide coverage for its employees providing services on a project, for the duration of the project based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements;
- 2. provide a certificate of coverage showing workers' compensation coverage to the governmental entity prior to the beginning work on the project;
- 3. provide the governmental entity, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the contractor's current certificate of coverage ends during the duration of the project;
- 4. obtain from each person providing services on a project, and provide to the governmental entity:
 - a. a certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

- b. no later than seven days after receipt by the contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
 - c. prior to submission for monthly payment;
- 5. retain all required certificates of coverage on file for the duration of the project and until the end of the warranty period;
- 6. notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project;
- 7. post a notice on each project site informing all persons providing services on the project that they are required to be covered, and stating how a person may verify current coverage and report failure to provide coverage. This notice does not satisfy other posting requirements imposed by the Act or other commission rules. This notice must be printed with a title in at least 30-point bold type and text in at least 19-point normal type, and shall be in both English and Spanish and any other language common to the worker population. The text for the notices shall be the following text provided by the commission on the sample notice, without any additional words of changes: **REQUIRED WORKERS' COMPENSATION COVERAGE** "The law requires that each person working on this site or providing services related to this construction project must be covered by workers' compensation insurance. This includes persons providing, hauling, or delivering equipment or materials, or providing labor or transportation or other service related to the project, regardless of the identity of their employer or status as an employee." "Call the Texas Workers' Compensation Commission at (512)440-3789 to receive information on the legal requirement for coverage, to verify whether your employer has provided the required coverage, or to report an employer's failure to provide coverage." and
- 8. contractually require each person with whom it contracts to provide services on a project, to:
 - a. provide coverage based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements for all of its employees providing services on the project, for the duration of the project;
 - b. provide a certificate of coverage to the contractor prior to that person beginning work on the project;
 - c. include in all contracts to provide services on the project the language in subsection (e)(3) of this rule;
 - d. provide the contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
 - e. obtain from each other person with whom it contracts, and provide to the contractor:
 - i. a certificate of coverage, prior to the other person beginning work on the project; and
 - ii. prior to the end of the coverage period, a new certificate of coverage showing extension of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
 - f. retain all required certificates of coverage on file for the duration of the project and until the end of the warranty period;

- g. notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and
- h. contractually require each other person with whom it contracts, to perform as required by paragraphs (A)-(H), with the certificate of coverage to be provided to the person for whom they are providing services.

E. A person providing services on a project, other than a contractor, shall:

- 1. provide coverage for its employees providing services on a project, for the duration of the project based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements;
- 2. provide a certificate of coverage as required by its contract to provide services on the project, prior to beginning work on the project;
- 3. have the following language in its contract to provide services on the project: "By signing this contract or providing or causing to be provided a certificate of coverage, the person signing this contract is representing to the governmental entity that all employees of the person signing this contract who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation as outlined in the Texas Labor Code, Chapter 407. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions."
- 4. provide the person for whom it is providing services on the project, prior to the end of the coverage period shown on its current certificate of coverage, a new certificate showing extension of coverage, if the coverage period shown on the certificate of coverage ends during the duration of the project;
- 5. obtain from each person providing services on a project under contract to it, and provide as required by its contract:
 - a. a certificate of coverage, prior to the other person beginning work on the project; and
 - b. prior to the end of the coverage period, a new certificate of coverage showing extension of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
- 6. retain all required certificates of coverage on file for the duration of the project and until the end of the warranty period;
- 7. notify the governmental entity in writing by certified mail or personal delivery, of any change that materially affects the provision of coverage of any person providing services on the project and send the notice within 10 days after the person knew or should have known of the change; and
- 8. contractually require each other person with whom it contracts to:
 - a. provide coverage based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements for all of its employees' providing services on the project, for the duration of the project;
 - b. provide a certificate of coverage to it prior to that other person beginning work on the

- project;
 - c. include in all contracts to provide services on the project the language in subsection (e)(3) of this rule;
 - d. provide, prior to the end of the coverage period, a new certificate of coverage showing extension of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
 - e. obtain from each other person under contract to it to provide services on the project, and provide as required by its contract;
 - i. a certificate of coverage, prior to the other person beginning work on the project; and
 - ii. prior to the end of the coverage period, a new certificate of coverage showing extension of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the contract;
 - f. retain all required certificates of coverage on file for the duration of the project and until the end of the warranty period;
 - g. notify the governmental entity in writing by certified mail or personal delivery, within ten days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and
 - h. contractually require each person with whom it contracts, to perform as required by paragraphs A-H, with the certificate of coverage to be provided to the person for whom they are providing services.
- F. If any provision of this rule or its application to any person or circumstance is held invalid, the invalidity does not affect other provisions or applications of this rule that can be given effect without the invalid provision or application, and to this end the provisions of this rule are declared to be severable.
- G. This rule is applicable for building or construction contracts advertised for bid by a governmental entity on or after September 1, 1994.

END OF SECTION

SECTION 01 01 00 SPECIAL CONDITIONS

PART 1. GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to this section.

1.2 LOCATION AND SCOPE OF THE PROJECT

- A. The project is located at Texas Tech University Health Sciences Center in Lubbock, Texas.
- B. This project includes landscaping the space previously occupied by the Preston Smith Library.

1.3 RELATED REQUIREMENTS

- A. Instructions to Proposers.
- B. Agreement Forms
- C. General Conditions

1.4 EQUAL OPPORTUNITY CLAUSE

- A. Attention is called to the Equal Opportunity Clause applicable to this project and included in the Specifications.

1.5 EXAMINATION OF FIELD CONDITIONS

- A. The Contractor shall take field measurements and verify field conditions and shall carefully compare these field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing work. Errors, inconsistencies, or omissions discovered shall be reported to the Design Professional before proceeding with the work.

1.6 ADDENDA

- A. Any addenda issued in writing by the Design Professional prior to the proposal closing time shall be covered by the proposal. In closing the Contract such addenda will become a part thereof and modify these Specifications and/or the Drawings accordingly. Verbal changes in the work as shown or described will not be binding

1.7 START OF WORK

- A. The contractor will commence work on or after a date specified in a written "Notice to Proceed" by the Institution.

1.8 COORDINATION

- A. All contractors and subcontractors on the project shall coordinate their work with each other, advising on work schedules, equipment locations, etc.

1.9 DRAWINGS AND SPECIFICATIONS

- A. The drawings and specifications are intended to describe and provide for a finished and complete piece of work, and all work must meet the requirements of all the applicable and governing laws, ordinances, rules, and regulations of the locality.

- B. No extra compensation will be allowed for oversight of any such requirements, except by written order issued by Texas Tech.
- C. Should any doubt arise regarding Drawings or Specifications, clarification shall be requested of Texas Tech's Representative or the Design Professional. Failure to do so will not relieve the Contractor from the responsibility to complete the work to Texas Tech's satisfaction.

1.10 MEASUREMENTS

- A. Before ordering any material or doing any work, the Contractor shall verify all measurements of the work and shall be responsible for the correctness of same; any difference which may be found shall be submitted to the Design Professional for consideration before proceeding with the work.

1.11 PROTECTION OF EXISTING FACILITIES

- A. The Contractor shall take precautions to protect existing facilities and features within the designated construction limits and along the access to the construction site.
- B. After materials, equipment and machinery are installed, properly protect all work until the several portions thereof are accepted.
- C. Any damage from whatever cause shall be made good by the Contractor without cost to the Institution, whether the repair is made with the Contractor's own materials and labor or by others under the Contractor's directions.

1.12 REFERENCE STANDARDS

- A. For products specified by association or trade standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. The date of the standard is that in effect as of the proposal closing date, except when a specific date is specified.
- C. Obtain copies of standards when required by Contract Documents. Maintain a copy at job site during progress of the specific work.

1.13 MANUFACTURER'S DIRECTIONS

- A. All manufacturers' articles, materials and equipment shall be applied, installed, connected, erected, secured, used, cleaned, and put in operation as recommended, directed, or specified by the manufacturer, for the type of installation called for.

1.14 ITEMS SPECIFIED BY TRADE NAME

- A. Reference to items by specific trade name is made as a basis of quality and function. Equivalent items may be used instead; however, the right to determine such quality shall remain with the Institution's representative. The terms "similar to", "or equal" or similar phrases shall be interpreted similarly.

1.15 SUBSTITUTIONS

- A. Substitutions of any materials other than those specifically called for shall be submitted to the Design Professional and Texas Tech for approval.

1.16 SAFETY REQUIREMENT

- A. Store volatile waste in covered metal containers and remove it from the premises daily.
- B. Prevent the accumulation of waste, which creates hazardous conditions.

- C. Provide adequate ventilation during the use of volatile or noxious substances.
- D. Conduct cleaning and disposal operations to comply with local ordinances and antipollution laws.
- E. Do not burn or bury rubbish and waste materials on the Project site.
- F. Do not dispose of volatile waste such as mineral spirits, oil, or paint thinner in storm or sanitary drains.

1.17 REPAIR OF DAMAGE

- A. The Contractor shall be responsible for any loss or damage caused by contractor's workers or subcontractors to the work or materials, to tools and the equipment of one another, to adjacent property and persons, and shall make good any loss, damage, or injury without cost to Texas Tech.

1.18 CLEANING

- A. The Contractor shall promptly remove from the building, lot, sidewalks, and streets all rubbish and dirt due to the work done under this contract. At the completion of work, completely clean the areas in which work has been done, including glass, and leave the building thoroughly cleaned and ready for occupancy. All construction debris shall be removed.

1.19 REMOVAL OF DEBRIS

- A. The Contractor shall remove from the Campus and dispose of all unused materials and debris created by the construction process for the Project. The Contractor is to keep the streets and construction area free of rubbish and debris. Grass and weeds within the construction fence are to be kept mowed. The site shall comply with the City Code and Environmental Safety regulations. The Contractor shall broom the streets during the excavation and filling process so that all spillage is removed as the work progresses.

1.20 WRITTEN GUARANTEE

- A. In addition to the requirements of the Uniform General Conditions and Supplementary General Conditions, the Contractor shall submit to Texas Tech a Written Guarantee, prior to release of final payment, on a form approved by the Design Professional and Texas Tech for the work, materials, and equipment for a one-year period.

1.21 DELAYS AND EXTENSION OF TIME

- A. In addition to the provisions of Article XXIV, paragraph 24.3 of the Uniform General Conditions and Supplementary General Conditions, the following provisions shall apply:
 - 1. In reference to Article XXIV, paragraph 24.3, the number of weather days for the following months shall be considered normal weather days for Lubbock, Texas. No time extension for weather delays will be given unless the number indicated is exceeded.

MAIN CAMPUSES

TTU / TTUHSC - Lubbock, TX

| | | | |
|----------|--------|-----------|--------|
| January | 2 days | July | 4 days |
| February | 2 days | August | 4 days |
| March | 3 days | September | 5 days |
| April | 4 days | October | 4 days |
| May | 6 days | November | 3 days |
| June | 6 days | December | 3 days |

END OF SECTION

SECTION 01 25 00 SUBSTITUTION REQUEST PROCEDURES

PART 1. GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. TTUS Uniform General and Supplementary General Conditions Section 00 72 00 Article 8.
- C. TTUS FP&C Design & Construction Standards.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Section 01 60 00 Product Requirements - for submitting comparable product submittals for products by basis of design manufacturers.

1.3 DEFINITIONS

- A. Substitutions: Deviation from the specified basis of design products, materials, manufacturers, or methods of construction from those stipulated by Construction Documents and bid by Contractor.
 - 1. Substitution for Cause: Changes proposed by Contractor or Subcontractor due to unavailability of specified materials, products, equipment manufacturer, or delayed delivery with the potential of impacting Substantial Completion, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitution for Convenience: Changes proposed by Construction Manager, Contractor, or Subcontractor, or Texas Tech not required to meet Project requirements but offering a clear benefit (cost savings, schedule acceleration, increase in quality for no additional costs, or increase in quantity for no additional costs, etc.) to Texas Tech.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Include Specification Section number and title, as well as Drawing numbers and titles.
 - 1. Substitution Request Form: Use TTUS FP&C provided form.
 - 2. Documentation: Show compliance with the requirements for substitutions and the following, as applicable:
 - a. Reason statement: Indicate reason for not providing specified item and why specified product or fabrication or installation method cannot be provided.
 - b. Proposed substitution: List product and/or material details and all listed differences from the specified item.
 - c. Coordination of information: Include a list of changes or revisions to the Work and construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution(s).

- d. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified: Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - e. Product Data: Include drawings and descriptions of products and fabrication and installation procedures.
 - f. Samples, where applicable or when requested.
 - g. Certificates and qualification data, as applicable, and when specified.
 - h. List of similar installations: For completed projects, with project names and addresses as well as names and addresses of Design Professionals and owners.
 - i. Material test reports: From a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
 - j. Research reports: Evidence of compliance with building code in effect for Project.
 - k. Detailed comparison of Contractor's construction schedule using proposed substitutions: With products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - l. Cost information: Include the cost of the proposed change, with associated back-up material costs provided in detail from the substitute materials manufacturer. Substitution requests cannot change Contract Sum, unless approved by Texas Tech.
 - m. Contractor's certification: That proposed substitution complies with requirements in Contract Documents, does not violate the prime Agreement except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - n. Contractor's waiver of rights: To additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Design Professional's Action: If necessary, Design Professional will request additional information or documentation for evaluation within seven (7) days of receipt of a request for substitution. Design Professional will notify Contractor of acceptance or rejection of proposed substitution within fifteen (15) days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Design Professional's supplemental instructions for minor changes in the Work.
 - b. Use product specified if Design Professional does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers, as required by the Design Professional and Texas Tech.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected Work as necessary to integrate Work of the substitutions, if approved in writing.

1.7 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than fifteen (15) days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Texas Tech will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Texas Tech will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with Contract Documents and will produce indicated results.
 - b. Requested substitution provides sustainable design characteristics, is in compliance with stipulated building and energy codes, meets TTUS FP&C Design and Construction Standards, and FM Global requirements.
 - c. Substitution request is fully documented and properly submitted.
 - d. Requested substitution is guaranteed to not adversely affect Contractor's construction schedule.
 - e. Requested substitution has received necessary approvals of authorities having jurisdiction (AHJ).
 - f. Requested substitution is compatible with other portions of the Work.
 - g. Requested substitution has been coordinated with other portions of the Work.
 - h. Requested substitution provides specified warranty.
 - i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Not allowed unless properly requested from Texas Tech in sufficient amount of time to be considered within the Guaranteed Maximum Price to be submitted at fifty percent (50%) Construction Documents.
 - 1. Conditions: Texas Tech will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Design Professional will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Substitution request must consider and factor in potential Owner's additional costs to compensate Design Professional for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - b. Requested substitution does not require extensive revisions to Contract Documents.
 - c. Requested substitution is consistent with Contract Documents and will produce

indicated results.

- d. Requested substitution provides sustainable design characteristics, is in compliance with stipulated building and energy codes, meets TTUS FP&C Design and Construction Standards, and FM Global requirements.
- e. Substitution request is fully documented and properly submitted.
- f. Requested substitution will not adversely affect Contractor's construction schedule.
- g. Requested substitution has received necessary approvals of authorities having jurisdiction (AHJ).
- h. Requested substitution is compatible with other portions of the Work.
- i. Requested substitution has been coordinated with other portions of the Work.
- j. Requested substitution provides specified warranty.
- k. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2. PRODUCTS (Not Used)

PART 3. EXECUTION (Not Used)

END OF SECTION 01 25 00

**SUBSTITUTION
REQUEST****(After the Bidding/Negotiating Phase)**

Project: _____ Substitution Request Number: _____

From: _____
To: _____ Date: _____

A/E Project Number: _____
Re: _____ Contract For: _____

Specification Title: _____ Description: _____
Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____
Manufacturer: _____ Address: _____ Phone: _____
Trade Name: _____ Model No.: _____
Installer: _____ Address: _____ Phone: _____

History: ☐ New product ☐ 1-4 years old ☐ 5-10 years old ☐ More than 10 years old

Differences between proposed substitution and specified product: _____

☐ Point-by-point comparative data attached — A/E review required prior to Owner review and consideration.²

Reason for not providing specified item: _____

Similar Installation:

Project: _____ Architect: _____
Address: _____ Owner: _____
_____ Date Installed: _____

Proposed substitution affects other parts of Work: ☐ No ☐ Yes; explain _____

Savings to Owner for accepting substitution: _____ (\$ _____).

Proposed substitution changes Contract Time: ☐ No ☐ Yes [Add] [Deduct] _____ days.

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

¹⁾ * **Contract Time** is defined under Article 1: Definitions of the Uniform General Supplemental Conditions (1.24).

²⁾ Texas Tech has sole approval authority on all Substitution Requests

SECTION 01 31 00 PROJECT MANAGEMENT AND COORDINATION

PART 1. GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. TTUS FP&C Design & Construction Standards.

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on the Project including, but not limited to, the following:
 - 1. General coordination procedures,
 - 2. Coordination drawings,
 - 3. Request for Information (RFI),
 - 4. Digital Project management procedures, and
 - 5. Project meetings.
- B. Each Contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific Contractor.
- C. Related Requirements:
 - 1. Section 01 77 00 Closeout Requirements - for coordinating closeout of Contract.
 - 2. Section 01 91 13 General Commissioning Requirements - for coordinating Work with Owner's commissioning authority.

1.3 DEFINITIONS

- A. BIM: Building Information Modeling.

1.4 INFORMATIONAL SUBMITTALS

- A. Subcontractors List: Prepare a written summary identifying subcontractors, their individual points of contact that can make decisions on behalf of the company for each portion of Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, telephone number, and email address of entity performing subcontract or supplying products,
 - 2. Number and title of related Specification Section(s) covered by subcontract, and
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.
 - 4. Construction Manager is required to update and resubmit to Texas Tech the subcontractor list throughout the buyout process until buyout is complete.
- B. Key Personnel Names: Within fifteen (15) days after issuance of Notice to Proceed (NTP) and prior to start of construction operations, submit a list of key personnel assignments, including

superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities, include addresses, cellular telephone numbers, and e-mail addresses.

1. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
- C. Baseline Schedule: Refer to Section 00 72 00 Uniform General Conditions and Supplementary General Conditions, Article 1.
- D. Submittal Register: Refer to Section 00 72 00 Uniform General Conditions and Supplementary General Conditions, Article 1.
- E. Submittal Schedule: Refer to Section 00 72 00 Uniform General Conditions and Supplementary General Conditions, Article 1.

1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of Specifications to ensure efficient and orderly installation of each part of Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
 1. Schedule construction operations in sequence required to obtain the best results where installation of one (1) part of Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Coordination: Each Contractor shall coordinate its construction operations with those of other Contractors and entities to ensure efficient and orderly installation of each part of Work. Each Contractor shall coordinate its own operations with operations included in different Sections that depend on each other for proper installation, connection, and operation.
 1. Schedule construction operations in sequence required to obtain the best results where installation of one (1) part of Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components with other Contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Coordinate installation of different components of Work with Owner provided furniture, fixtures, equipment, branding, interior art, public art, audio visual equipment, building networking technology, and any other systems not installed by Construction Manager or its Contractors.
 4. Make adequate provisions to accommodate items scheduled for later installation.
- C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 1. Prepare similar memoranda for Owner and separate Contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and scheduled activities of other Contractors to avoid conflicts and rework, and to ensure orderly progress of Work. Such administrative activities

include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule,
2. Preparation of the Schedule of Values,
3. Worker wage rate forms,
4. Tool log form,
5. Allowance and Contingency reports,
6. Landscape enhancements expenditure reporting logs,
7. Installation and removal of temporary facilities and controls,
8. Delivery and processing of submittals,
9. Coordination with Owner provided Project work,
10. Public and private utilities shutdowns,
11. Coordination of site security, life, and safety,
12. Progress meetings,
13. Preinstallation conferences,
14. Project close out activities, and
15. Startup and adjustment of systems.

1.6 COORDINATION DRAWINGS

A. Coordination Drawings, General: Prepare coordination drawings according to:

1. Requirements in individual Sections,
2. Where installation is not completely indicated on Shop Drawings,
3. Where limited space availability necessitates coordination, and/or
4. If coordination is required to facilitate integration of products and materials fabricated or installed by more than one (1) entity.
5. Content: Project-specific information is to be drawn accurately to a scale large enough to indicate and resolve conflicts.
 - a. Do not base coordination drawings on standard printed data.
 - b. Include the following information, as applicable:
 - i. Use applicable Drawings as a basis for preparation of coordination drawings,
 - 1) Prepare sections, elevations, and details as needed to describe the relationship of various systems and components.
 - ii. Coordinate addition of trade-specific information to coordination drawings by multiple Contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review,
 - iii. Indicate functional and spatial relationships of components of architectural,

structural, civil, mechanical, and electrical systems,

- iv. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation,
- v. Show location and size of access doors required for access to concealed dampers, valves, and other controls,
- vi. Indicate required installation sequences, and
- vii. Indicate dimensions shown on Drawings.
 - 1) Specifically note dimensions that appear to conflict with submitted equipment and minimum clearance requirements.
 - 2) Provide alternative sketches to Design Professional indicating proposed resolution of such conflicts.
 - 3) Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:

- 1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire protection, fire alarm, and electrical Work.
 - a. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid.
 - b. Supplement plan drawings with section drawings where required to adequately represent the Work.
- 2. Plenum Space: Indicate sub-framing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work.
 - a. Locate components within plenums to accommodate layout of light fixtures and other components indicated on Drawings.
 - b. Indicate areas of conflict between light fixtures and other components.
- 3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire protection, fire alarm, and electrical equipment.
- 4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
- 5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
- 6. Mechanical and Plumbing Work: Show the following:
 - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems,
 - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts, and electrical distribution equipment, and
 - c. Fire-rated enclosures around ductwork.
- 7. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger,

- b. Light fixtures, light switches, occupancy sensors, emergency exit lights, and emergency battery pack locations,
 - c. Panel board, switch board, switchgear, transformer, busway, generator, and motor-control center locations,
 - d. Location of pull boxes and junction boxes, dimensioned from column center lines,
 - e. Fire alarm systems,
 - i. Show the following:
 - 1) Fire alarm control panels, remote annunciator panels, smoke detectors, pull stations, fire strobes, and other fire-alarm locations.
 - f. Fire protection system, and
 - i. Show the following:
 - 1) Locations of standpipes, risers, mains piping, branch lines, pipe drops, sprinkler heads, and hydraulic calculations data.
 - g. Electronic Access and Security System.
 - i. Show the following:
 - 1) Card readers, request to exit device, door position switches, video surveillance cameras, power supplies, and access control panel locations.
- 8. Review: Design Professional will review coordination drawings to confirm that in general Work is being coordinated, but not for the details of the coordination which are Contractor's responsibility.
 - a. If the Design Professional determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Design Professional will inform Contractor who shall make suitable modifications and resubmit.
- 9. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 01 33 00 Submittals.
- C. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
 - 1. File Preparation Format: Same digital data software program, version, and operating system as original Drawings.
 - 2. File Submittal Format: Submit or post coordination drawing files using PDF format.
 - 3. BIM File Incorporation: Develop and incorporate coordination drawing files into BIM established for Project, if required by Texas Tech.
 - a. Construction Manager will perform three-dimensional component conflict analysis as part of preparation of coordination drawings.
 - b. Resolve component conflicts prior to submittal.
 - c. Indicate where conflict resolution requires modification of design requirements by Design Professional.
 - 4. Design Professional will furnish Contractor one (1) set of digital data files of Drawings for use in preparing coordination digital data files.

- a. Design Professional makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
- b. Contractor shall execute a data licensing agreement with Design Professional.

1.7 REQUEST FOR INFORMATION (RFI)

- A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of Contract Documents, Contractor shall prepare and submit an RFI in the process specified in Trimble Unity Construct (formerly e-Builder).
 - 1. Coordinate and submit RFIs in a prompt manner in Trimble Unity Construct (formerly e-Builder) to avoid delays in Work and construction schedule.
- B. Content of the RFI: Include a detailed, legible description of item(s) needing information or interpretation within Trimble Unity Construct (formerly e-Builder) that at a minimum includes the following:
 - 1. TTUS FP&C Project name,
 - 2. TTUS FP&C Project number,
 - 3. Date,
 - 4. Name of Contractor and/or Subcontractor,
 - 5. Name of Design Professional and Construction Manager,
 - 6. RFI number (this number is automatically and sequentially assigned by Trimble Unity Construct (formerly e-Builder)),
 - 7. RFI subject,
 - 8. Specification Section number and title and related paragraphs, as appropriate,
 - 9. Drawing number and detail references, as appropriate,
 - 10. Field dimensions and conditions, as appropriate,
 - 11. Contractor's suggested resolution,
 - a. If Contractor's suggested resolution impacts Contract Time or Contract Sum, Contractor shall state impact in the RFI,
 - 12. Contractor's signature, and
 - 13. Attachments.
 - a. Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - b. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
 - 14. Attachments shall be electronic files in true, not scanned, PDF format (i.e. searchable) uploaded into Trimble Unity Construct (formerly e-Builder) and associated with the RFI process in which the question is being posed.
- C. Design Professional's Action: Design Professional will review each RFI, determine action required, and respond in Trimble Unity Construct (formerly e-Builder) within seven (7) working

days.

1. The following submitted RFIs will be returned without action:
 - a. Requests for approval of submittals.,
 - i. Use submittal form in Trimble Unity Construct (formerly e-Builder).
 - b. Requests for approval of substitutions,
 - i. Requests for material substitutions must occur when the GMP is established and must be process approved prior to scope buyout.
 - c. Requests for approval of means and methods,
 - d. Requests for coordination information already indicated in Contract Documents,
 - e. Requests for adjustments in Contract Time or Agreement amount,
 - f. Requests for interpretation of Design Professional's or Owner's actions on submittals, and
 - g. Incomplete RFIs or inaccurately prepared RFIs.
2. Design Professional's action may include a request for additional information, in which case Design Professional's time for response will date from time of receipt by Design Professional of additional information.
3. Design Professional's response to an RFI that may result in a potential scope change to the Project will be issued via a separate Construction Change Request (CCR) document per UGSC.
 - a. If Construction Manager believes RFI response warrants change in Contract Time or Contract Sum, Construction Manager is required to notify Texas Tech in writing within ten (10) calendar days of receipt of RFI response.
 - b. Failure to provide such written notification within this allocated time frame prohibits Construction Manager from requesting compensation past the allocated ten (10) calendar day time frame.
- D. RFI Log: Prepare, maintain, and submit a tabular log from Trimble Unity Construct (formerly e-Builder) of RFIs organized by RFI number. Submit an updated log with each Project management meeting agenda.

1.8 DIGITAL PROJECT MANAGEMENT PROCEDURES

- A. Design Professional and all subconsultants warrant and agree to prepare all production related BIM and CAD files, becoming the Design Professional's instruments of services, to a minimum level of development (LOD) 350, based on the current version of BIMForum standards. The level of development of all production drawings contributing to the Design Professional's Construction Documents phase of services must be in adequate detail to convey with clarity the comprehensive design intent for accurate scope pricing.
- B. Digital data files (Design Professional's instruments of service): Construction Manager may request digital data files from Design Professional and subconsultants of 'Issue for Construction' Revit models or exported CAD files.
 1. Design Professional may charge Construction Manager a reasonable rate for the time required to prepare the digital files and for the export of Revit (.rvt) drawing files into CAD (.dwg) formatted files.

2. Construction Manager is not permitted to make exhaustive requests for updated BIM or CAD files as scope changes occur unless Construction Manager is willing to pay for said digital data files from their Construction Manager fee portion.
 - a. Digital data files may be used by Subcontractors and materials suppliers in preparing Project specific coordination and Shop Drawings.
 - b. Design Professional makes no representations as to the accuracy or completeness of their digital data files as they relate to Construction Documents.
 - c. Construction Manager understands the Design Professional's instruments of service convey design intent only and are not to be considered Shop Drawings.
 - d. Construction Manager and their Contractors shall execute with Design Professional a data licensing agreement in the form of *AIA Document C106 Digital Data Licensing Agreement*, or an agreement form acceptable to both Texas Tech and Design Professional.
 - e. Subcontractors and other parties granted access by Construction Manager to the Design Professional's digital data files shall execute a data licensing agreement in the form of *AIA Document C106 Digital Data Licensing Agreement*, or an agreement acceptable to both Texas Tech and Design Professional.
- C. PDF Document Preparation: Where PDFs are required to be submitted, prepare as follows:
1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 2. Name file with submittal number or other unique identifier, including revision identifier.
 3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate where indicated.
 4. Do not submit PDF image files (scan to PDF). All submitted PDF files must be in true PDF format (i.e., searchable).

1.9 PROJECT MEETINGS

- A. General: Construction Manager will schedule, and conduct Project related meetings and conferences as required by Texas Tech to fulfill their obligations for the Project.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of the date and time of each meeting. Notify Texas Tech and Design Professional of scheduled meeting dates and times a minimum of fourteen (14) working days prior to meeting.
 2. Agenda: Prepare meeting agendas. Distribute agendas and required meeting documents to all invited attendees prior to the meeting.
 3. Minutes: Construction Manager will record meeting discussions, directions issued, action items for further follow-up, and distribute the meeting minutes to everyone concerned, including Texas Tech and Design Professional, within three (3) working days after meeting.
 4. At a minimum, the following meetings are required of Construction Manager, and responsible Contractors and Subcontractors for the delivery of Construction Services:
 - a. Preproposal meetings,
 - b. Contractor and Subcontractor selection meetings,
 - c. Preconstruction conference,

- d. Preinstallation meetings (all trades),
 - e. Progress meetings,
 - f. Furniture, fixture, and equipment (FFE) meetings,
 - g. Project closeout conference, and
 - h. Coordination meetings.
- B. Preproposal meetings: Construction Manager will conduct Preproposal meetings for every scope of the Work and provide Texas Tech the opportunity to participate.
- 1. Attendees: Prime bidders, proposers, Contractors, and Subcontractors.
 - 2. Agenda: Preproposal meeting agenda shall be developed by Construction Manager but will include review of topics that may affect proper preparation and submission of bids, including, but not limited to the following:
 - a. Procurement and contracting requirements,
 - i. Instructions for bidding,
 - ii. Qualifications and selection criteria requirements,
 - iii. Bonding and/or SDI,
 - iv. Insurance,
 - v. Bid security,
 - vi. Bid form and attachments,
 - vii. Bid submittal requirements,
 - viii. Bid submittal checklist, and
 - ix. Notice of award.
 - b. Communication during bidding period,
 - i. Obtaining documents,
 - ii. Access to Project website,
 - iii. Bidder's requests for information,
 - iv. Bidder's substitution request and/or prior approval request, and
 - v. Addenda.
 - c. Contracting Requirements,
 - i. Construction Manager's Agreement,
 - ii. Texas Tech front end requirements,
 - iii. TTUS Uniform General Conditions and Supplementary General Conditions (UGSC), and
 - iv. Other Owner requirements.
 - d. Construction Documents,

- i. Scopes of Work,
 - ii. Temporary facilities,
 - iii. Use of site,
 - iv. Work restrictions,
 - v. Alternates, allowances, and unit prices,
 - vi. Texas Tech Special Conditions, and
 - vii. Substitutions following award.
 - e. Separate contracts,
 - i. Work by Owner and
 - ii. Work of other Contracts.
 - f. Schedule,
 - i. Project Schedule,
 - ii. Contract Time,
 - iii. Liquidated Damages, and
 - iv. Other Bidder Questions.
 - g. Site and/or facility visit or walkthrough, and
 - h. Post-meeting Addenda.
3. Minutes: Construction Manager will record and distribute meeting minutes to attendees. Minutes of meetings are issued as available information and do not constitute a modification to the contracting nor Construction Documents. Modifications to the contracting and Construction Documents can only be issued by written Addendum only.
 4. Sign-in Sheet: Minutes will include list of meeting attendees.
- C. Contractor and/or Subcontractor selection meetings: Construction Manager will schedule with Texas Tech selection meetings for every scope of the Work, make recommendations to Texas Tech, and gain agreement from Texas Tech on the best value selection for the Project, per Texas Education Code, Chapter 51. Provisions Generally Applicable to Higher Education.
1. Attendees: Construction Manager, Texas Tech, the component institution, Construction Manager Agent, if applicable, and others as warranted by Texas Tech.
 2. Process:
 - a. Construction Manager is to make solicitations by CSI Division and provide bid summary breakdowns per Specification Sections.
 - i. Each bidder is required to price each Specification Section separately, providing concise, detailed cost breakouts for materials (costs and lead time schedules), labor (regular and after hours), equipment rentals, overhead, and profit.
 - b. Construction Manager is to develop selection criteria and allocate points to each criterion for review by Texas Tech. Once approved, Construction Manager will use this criterion to evaluate each bidder's proposal.

- c. Construction Manager is to solicit bids, receive bids, review and compare each bidder's proposal to each Specification Section to validate the scope of the Work, in its entirety, is accounted for within the bid price.
 - i. In verifying with the bidder, Construction Manager is required to disclose all assumptions, clarifications, exclusion, substitutions, etc., to Texas Tech during the best value selection award meeting.
 - d. Construction Manager is to provide a consolidated Subcontractor evaluation summary matrix for evaluation and comparison for every Specification Section.
 - e. Construction Manager shall recommend their preferred bidder to Texas Tech for discussion and scope award based on the selection criteria and points ranking within the scoring matrix.
 - f. The recommended bidder's price shall be compared to the baseline GMP provided at fifty percent (50%) CD's, with cost differences tracked in a Construction Buyout Contingency log.
 - g. Construction Manager is to enter a Construction Change Proposal (CCP) into Trimble Unity Construct (formerly e-Builder) to buyout each scope of the Work, indicating surplus or deficit amounts for each awarded bidder. The CCP must clearly indicate the Schedule of Values budget item(s) facilitating and funding the specific scope of the Work buyout.
 - h. Bids for self-performed Work must go through the same process and be evaluated against the same scoring criterion as other bidders.
 - i. A written notice of intent to bid as a self-performed Subcontractor must be submitted to TTUS FP&C ten (10) calendar days prior to the due date of bid submissions.
 - ii. Bids for self-performed work must be received by TTUS FP&C as a sealed bid no later than twenty-four (24) hours in advance of the due date and time deadline for proposer bid submissions.
 - iii. Texas Tech will determine if Construction Manager's bid to self-perform offers best value to the project.
 - i. Once buyout is complete for the original scope of the Work, per the terms of Agreement, Construction Manager will move buyout savings to Owner's Contingency.
 - i. In the event buyout results in a Construction Buyout Contingency log fund deficit, based on the GMP baseline numbers at fifty percent (50%) CD's, Construction Manager is required to fund the residual balance from Construction Manager's Contingency.
 - ii. In the instance where Construction Manager's Contingency becomes a negative balance, all remaining costs for completion of scope of the Work buyout will come from Construction Manager's fee.
3. Agenda: As determined by Construction Manager.
 4. Minutes: Construction Manager will be responsible for recording and distribution of all meeting minutes, as well as any follow-up to finalize selection and award of the scopes of the Work.
- D. Preconstruction Conference: Construction Manager, in coordination with Texas Tech, will schedule and conduct a preconstruction conference before the start of construction activities, at a time convenient to Construction Manager and Design Professional, but no later than fifteen (15)

days after issuance of Notice to Proceed (NTP) to Construction Manager.

1. Attendees: Authorized representatives of Texas Tech, the component institution, Design Professional, third-party commissioning authority, third-party materials testing, and inspection company, Construction Manager, its superintendent and Project managers, major Subcontractors, suppliers, and other concerned parties shall attend the conference. Participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Introduction of Project team members, responsibilities, personnel assignments, and emergency procedures,
 - b. Construction schedule requirements (Owner coordinated work, NTP, construction milestones, Substantial Completion, and Final Completion),
 - c. Site logistics, execution logistics, and phasing,
 - d. Critical work sequencing and long lead items,
 - e. Designation of key personnel and their duties,
 - f. Lines of communications,
 - g. Use of web-based Project software, Trimble Unity Construct (formerly e-Builder),
 - h. Procedures for processing field decisions and Construction Change Requests (CCR),
 - i. Procedures for Construction Change Proposal (CCP) and Schedule of Values audit reviews, including internal and third-party auditing,
 - j. Procedures for testing and inspecting,
 - k. Procedures for processing Applications for Payment,
 1. Distribution of the Contract Documents and use of Bluebeam Project,
 - m. Submittals, RFI's, ASI's, CCR's, CCP's, Applications for Payment, and field observation reporting procedures,
 - n. Sustainable design requirements, if applicable,
 - o. Preparation of Project Closeout (As-Built, training, demonstrated operations, and Record Documents [O&M's, warranties, etc.]),
 - p. Use of the premises, construction site cleaning, and existing building protection,
 - q. Work restrictions, worker safety, Project site security, stormwater management, etc.,
 - r. Working hours,
 - s. Owner's occupancy requirements,
 - t. Responsibility for temporary facilities and controls,
 - u. Procedures for moisture and mold control,
 - v. Procedures for disruptions and shutdowns,
 - w. Construction waste management and recycling,

- x. Parking availability,
 - y. Office, work, and storage areas, and
 - z. Equipment deliveries and priorities.
- 3. Minutes: Texas Tech will be responsible for conducting this meeting, recording, and distributing meeting minutes.
- E. Preinstallation Meetings: Construction Manager is required to conduct preinstallation conferences at Project site prior to each construction trade partner, Contractor, and Subcontractor's start of their Work for proper coordination with other construction. Preinstallation Project meetings are to be scheduled with a minimum of fourteen (14) working days prior notice to Texas Tech. Construction Manager shall review Project processes, Project safety and security protocols, current Construction Documents requirements, Addenda, RFI, ASI, CCR, Submittals status, mockup requirements, materials testing and inspection requirements, owner training requirements, warranty requirements, TTUS FP&C Design and Construction Standards, FM Global requirements, component institution OPs, and other regulatory agency requirements (QEI, TCEQ, TDLR, SWPPP, etc.) with the trade partners, Contractors, and Subcontractors.
 - 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow shall attend the meeting. Advise Design Professional and Texas Tech of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the trade partner, Contractor, and Subcontractor under consideration, including requirements for the following:
 - a. Contract Documents,
 - b. Options,
 - c. Related RFIs.
 - d. Related Change Orders,
 - e. Purchases,
 - f. Deliveries,
 - g. Submittals,
 - h. Sustainable design requirements,
 - i. Review of mockups,
 - j. Possible conflicts and back charging of Work,
 - k. Compatibility requirements,
 - l. Time schedules,
 - m. Weather limitations,
 - n. Manufacturer's written instructions,
 - o. Warranty requirements,
 - p. Compatibility of materials,

- q. Acceptability of substrates,
 - r. Temporary facilities and controls,
 - s. Space and access limitations,
 - t. Regulations of authorities having jurisdiction (AHJ),
 - u. Testing and inspecting requirements,
 - v. Installation procedures,
 - w. Coordination with other work,
 - x. Required performance results,
 - y. Protection of adjacent work, and
 - z. Protection of construction and personnel.
3. Construction Manager shall record significant conference discussions, agreements, and clarifications, including required corrective measures and actions.
 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate required actions necessary to resolve impediments to performance of Work and reconvene the conference at earliest feasible date, if required.
- F. Progress Meetings: Texas Tech, Construction Manager, and Design Professional will collectively conduct progress meetings as required by Texas Tech. At minimum the meetings will be held in bi-monthly intervals.
1. Coordinate dates of meetings to facilitate Architect's on-site reviews and validation of billing percentages for construction Applications for Payment.
 2. Attendees: Texas Tech, the component institution, Design Professional, Contractors, Subcontractors, suppliers, and others concerned with current progress or involved in planning, coordination, or performance of future activities of Project. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to Work.
 3. Agenda: Texas Tech will develop the meeting agenda. At a minimum the following will be reviewed:
 - a. Contractor's Construction Schedule:
 - i. Review progress since the last meeting.
 - ii. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule.
 - iii. Document and report all activities behind schedule to Texas Tech and indicate reason.
 - iv. Determine how construction activities behind schedule will be expedited; secure commitments from parties involved to do so.
 - v. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within Contract Time.

- vi. Review schedule for next period.
- vii. Submit Time Extension Requests due to weather days on a monthly basis with the construction pay application.
- b. Review present and future needs of each entity present, including the following:
 - i. Interface requirements,
 - ii. Sequence of operations,
 - iii. Resolution of BIM component conflicts,
 - iv. Status of submittals,
 - v. Status of sustainable design documentation, if applicable,
 - vi. Deliveries,
 - vii. Off-site fabrication,
 - viii. Access,
 - ix. Site use,
 - x. Temporary facilities and controls,
 - xi. Progress cleaning,
 - xii. Quality and work standards,
 - xiii. Status of correction of deficient items,
 - xiv. Field observations,
 - xv. Status of RFIs,
 - xvi. Status of Proposal Requests,
 - xvii. Pending changes,
 - xviii. Status of Change Orders,
 - xix. Pending claims and disputes, and
 - xx. Documentation of information for payment requests.
- 4. Minutes: Design Professional is responsible for recording and distributing the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Construction Manager is required to revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the progress meeting minutes.
- G. Coordination Meetings: Construction Manager will conduct Project scope and management coordination meetings at weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation meetings.
 - 1. Attendees: Texas Tech, each Contractor, Subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings should be familiar with Project and authorized to conclude matters relating to Work.

2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Combined Contractor's Construction Schedule:
 - i. Review progress since the last coordination meeting.
 - ii. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule.
 - iii. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so.
 - iv. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within Contract Time.
 - b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each Contractor present, including the following:
 - i. Interface requirements,
 - ii. Sequence of operations,
 - iii. Resolution of BIM component conflicts,
 - iv. Status of submittals,
 - v. Deliveries,
 - vi. Off-site fabrication,
 - vii. Access,
 - viii. Site use,
 - ix. Temporary facilities and controls,
 - x. Work hours,
 - xi. Hazards and risks,
 - xii. Progress cleaning,
 - xiii. Quality and work standards,
 - xiv. Status of RFIs,
 - xv. Proposal Requests,
 - xvi. Change Orders, and
 - xvii. Pending changes.
3. Reporting: Construction Manager will record meeting results and distribute copies to Texas Tech, Design Professional, every party in attendance, and to others affected by decisions or actions resulting from each meeting.

- H. Project Closeout Conference: Construction Manager will schedule and conduct a Project closeout

conference, at a time convenient to Texas Tech and Design Professional, but no later than thirty (30) days prior to the scheduled date of Substantial Completion.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 - a. The following items are required to be verified as complete by the Construction Manager before Texas Tech will consider construction close out acknowledgement.
 - i. Certification of automatic fire suppression systems by authority having jurisdiction (AHJ),
 - ii. Certification of fire alarm systems by AHJ, inclusive of coordination with elevator conveyance and fire fighter recall,
 - iii. Certification of clean agent fire suppression systems by AHJ,
 - iv. Certification of wet chemical fire extinguishing systems by AHJ,
 - v. Elevator quality inspection (passing) for permitting purpose,
 - vi. Passing lab results for all bacteriological testing of domestic water systems,
 - vii. Complete commissioning, testing, adjusting, and balancing of required building systems with all identified corrective action items resolved,
 - viii. Design Professional certification that all identified punchlist items have been properly corrected by Construction Manager,
 - ix. All close out documentation (O&M's, warranties, As-Builts, etc.) required by contract are uploaded into Trimble Unity Construct (formerly e-Builder), as well as all extra stock materials received by the component institution,
 - x. Complete As-Built Drawings are uploaded into Trimble Unity Construct (formerly e-Builder),
 - xi. All training documents and recorded training videos are uploaded into Trimble Unity Construct (formerly e-Builder),
 - xii. FFE product information, technical data, and manufacturer's maintenance recommendations for floor finishes, wall finishes, special materials, and equipment care are uploaded into Trimble Unity Construct (formerly e-Builder),
 - xiii. All checked out keys returned, and access permissions revoked by the component institution,
 - xiv. Other items, as defined by Contract Documents, and necessary for the component institution to operate and maintain the completed Project are uploaded into Trimble Unity Construct (formerly e-Builder), and
 - xv. Reconciliation of all third-party audit findings.
2. Schedule all required training and operational demonstrations in conformance with Texas Tech's schedule and protocols.
3. Attendees: Texas Tech, their consultants, Contractor and representing superintendents, major Subcontractors, suppliers, and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
4. Agenda: Discuss items of significance that could affect or delay Project closeout, including the

following:

- a. Preparation of Record Documents,
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance,
 - c. Procedures for completing and archiving web-based Project software site data files,
 - d. Submittal of written warranties,
 - e. Requirements for completing sustainable design documentation, if required,
 - f. Requirements for preparing operations and maintenance (M&O) data,
 - g. Requirements for delivery of material samples, attic stock, and spare parts,
 - h. Requirements for demonstration and training,
 - i. Preparation of Contractor's punchlist,
 - j. Procedures for processing Applications for Payment at Substantial Completion and for Final Payment,
 - k. Reconciliation of all third-party audit findings,
 - l. Final submittals procedures (Trimble Unity Construct (formerly e-Builder)),
 - m. Coordination of separate contracts,
 - n. Owner's partial occupancy requirements,
 - o. Installation of Owner's furniture, fixtures, and equipment (FFE), and
 - p. Responsibility for removing temporary facilities and controls.
5. Minutes: Construction Manager will record and distribute meeting minutes, as well as required video recordings of training sessions.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

SECTION 01 33 00 - SUBMITTALS

PART 1. GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Texas Tech Uniform General and Supplementary General Conditions Section 00 72 00 Article 8.

1.2 SUMMARY

- A. Section includes:
 - 1. Submittal schedule requirements.
 - 2. Administrative and procedural requirements for submittals.
- B. Related Requirements
 - 1. Section 01 29 00 Payment Procedures - for submitting Applications for Payment and the Schedule of Values.
 - 2. Section 01 31 00 Project Management and Coordination - for submitting coordination drawings and subcontract list and for requirements for web-based Project software.
 - 3. Section 01 32 00 Construction Progress Documentation - for submitting schedules and reports including Contractor construction schedule.
 - 4. Section 01 40 00 Quality Requirements - for submitting test and inspection reports and schedule of tests and inspections.
 - 5. Section 01 77 00 Closeout Requirements - for submitting closeout submittals and maintenance material submittals.
 - 6. Section 01 78 23 Operation and Maintenance Data - for submitting operation and maintenance (M&O) manuals.
 - 7. Section 01 78 39 Project Record Data - for submitting record Drawings, record Specifications, and record Product Data.
 - 8. Section 01 79 00 Demonstration and Training - for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Texas Tech and Architect responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Texas Tech and Architect responsive action.
 - 1. Submittals may be rejected for not complying with requirements.
 - 2. Informational submittals are those submittals indicated in individual Specification Sections as

"informational submittals."

1.4 SUBMITTAL REGISTER

- A. Submittal Register: A list provided by Construction Manager of all items to be furnished for the Project for review by Texas Tech and Architect identified as a part of the Work in Contract Documents. Anticipated sequencing and submittal dates are to be included in the Submittal Register.
1. Refer to Section 00 72 00 Article 8.3 Texas Tech Uniform General and Supplementary General Conditions (UGSCs).
 2. A comprehensive Submittal Register is required to be submitted within twenty-one (21) days after Notice to Proceed (NTP) is issued to Construction Manager by Texas Tech.

1.5 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit a list of all submittals required under the Specifications required for review and approval prior to execution of the Work. Arrange in chronological order by date as required to achieve the Baseline Schedule for construction and progress construction activities to Substantial Completion. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Texas Tech and Architect, and additional time for handling and reviewing submittals required by those corrections.
1. Coordinate submittal schedule with the Schedule of Values and Construction Manager's Baseline Schedule for construction.
 2. Initial submission: Submit concurrently no later than ten (10) days after Texas Tech's Preconstruction Meeting with Baseline Schedule for construction. Include submittals required to meet construction schedule for the first one hundred twenty (120) days of construction. List:
 - a. Submittals required to maintain orderly progress of the Work and
 - b. Submittals required early due to long lead time for manufacture or fabrication.
 3. Final Submission: Submit concurrently with the first complete submittal of Construction Manager's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
 4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal,
 - b. Specification Section number and title,
 - c. Submittal category,
 - i. Action or
 - ii. Informational
 - d. Name of subcontractor,
 - e. Description of the Work covered,
 - f. Scheduled date for Texas Tech and Architect's final release for approval,

- g. Scheduled dates for purchasing,
- h. Scheduled date of fabrication,
- i. Scheduled dates for installation, and
- j. Activity or event number.

1.6 SUBMITTAL FORMATS

- A. Submittal Information: Submittals are to be true PDF (i.e., searchable) electronic files, uploaded into Trimble Unity Construct (formerly e-Builder). Include the following information in each submittal:
 - 1. Project name,
 - 2. Date,
 - 3. Name of Architect,
 - 4. Name of Construction Manager,
 - 5. Name of Contractor,
 - 6. Name of firm or entity that prepared submittal,
 - 7. Name of subcontractor, manufacturer, and supplier,
 - 8. TTUS FP&C unique alpha-numeric submittal number, including six-digit Specification Section number, submittal sequencing number (numeric identifier), and revision identifier (alpha suffix identifier) for resubmittals,
 - 9. Category and type of submittal,
 - 10. Submittal purpose and description,
 - 11. Number and title of Specification Section with paragraph number and generic name for each of the multiple items,
 - 12. Drawing number and detail references, as appropriate,
 - 13. Indication of full or partial submittal,
 - 14. Location(s) where product is to be installed, as appropriate,
 - 15. Other necessary identification,
 - 16. Remarks, and
 - 17. Signature of transmitter.
- B. Options: Identify options requiring selection by Texas Tech and Architect.
- C. Deviations and additional information: On each submittal, clearly indicate deviations from requirements in Contract Documents including:
 - 1. Minor variations and limitations and
 - 2. Relevant additional information and revisions, other than those requested by Texas Tech and Architect on previous submittals.

- a. Indicate by highlighting on each submittal or noting on attached separate sheet.
- D. PDF Submittals: Prepare submittals as true PDF (i.e., searchable) packages, incorporating complete information into each PDF file. Follow Texas Tech submittal file naming nomenclature for naming electronic files.
- E. Submittals for web-based Project software: Prepare submittals as true PDF(i.e., searchable) files, named correctly, and uploaded into Trimble Unity Construct (formerly e-Builder) Project software website.

1.7 SUBMITTAL PROCEDURES

- A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 - 1. Web-based Project software: Prepare submittals in true PDF (i.e., searchable) form and upload to Trimble Unity Construct (formerly e-Builder). Enter required data in e-Builder to fully identify submittal.
- B. Coordination: 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. Submit all action, informational, qualifications, and Shop Drawing submittal items required for each Specification Section concurrently as one submittal package.
 - a. Samples for approval may be submitted as a separate submittal.
 - b. Do not submit partial submittals for portions of the Work. Such submittals will be returned without review.
 - 3. Coordinate transmittal of submittals for related parts of the Work specified in different Specification Sections so processing will not be delayed due to need to review submittals concurrently for coordination.
 - a. Texas Tech and Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows:
 - 1. Time for review shall commence on Architect's receipt of submittal in Trimble Unity Construct (formerly e-Builder).
 - 2. No extension of the Contract Time will be authorized due to failure to transmit submittals within sufficient time prior to the Work to permit processing and resubmittals.
 - 3. Initial Review: Allow fifteen (15) days for initial review of each submittal.
 - a. Allow additional time if coordination with subsequent submittals is required.
 - b. Architect will advise Construction Manager when a submittal being processed must be delayed for coordination.
 - 4. Resubmittal Review: Allow fifteen (15) days for review of each resubmittal.
- D. Resubmittals: Make resubmittals in the same format and number of copies as the initial submittal.

1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked with approval notation from Architect.
- E. Distribution: Upload copies of final submittals into Trimble Unity Construct (formerly e-Builder) in "Final Submittal" folder.
1. Final submittals are to be consolidated and include:
 - a. The original submittal with mark-ups or review comments,
 - b. Design Professional's stamp of action to take on the submittal by Construction Manager, and
 - c. The electronic transmittal cover sheet generated by Trimble Unity Construct (formerly e-Builder).
- F. Use for Construction: Retain complete copies of submittals on Project site. Use only final submittals that are marked with approval notation from Design Professional.

1.8 SUBMITTAL REQUIREMENTS

- A. Product Data: Collect information into a single submittal for each element of construction, and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data is unsuitable 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:
 - a. Manufacturer's catalog cuts,
 - b. Color charts,
 - c. Statement of compliance with specified referenced standards,
 - d. Testing by recognized testing agency,
 - e. Application of testing agency labels and seals,
 - f. Notation of coordination requirements, and
 - g. Availability and delivery time information.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams that show factory-installed wiring,
 - b. Printed performance curves,
 - c. Operational range diagrams, and
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before Shop Drawings, and before or concurrent with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in Contract Documents. Include the following information, as applicable:
 - a. Identification of products,
 - b. Schedules,
 - c. Compliance with specified standards,
 - d. Notation of coordination requirements,
 - e. Notation of dimensions established by field measurement,
 - f. Relationship and attachment to adjoining construction clearly indicated, and
 - g. Seal and signature of professional engineer, if specified.

C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - a. Project name and submittal number,
 - b. Generic description of sample,
 - c. Product name and name of manufacturer,
 - d. Sample source,
 - e. Number and title of applicable Specification Section, and
 - f. Specification paragraph number and generic name of each item.
3. Web-based Project software: Prepare submittals in true PDF (i.e., searchable) format, and upload images of Samples into Trimble Unity Construct (formerly e-Builder). Enter required data in web-based software site to fully identify submittal.
 - a. In addition to Trimble Unity Construct (formerly e-Builder) submission, transmit physical Samples to Texas Tech and Architect.
4. Disposition: 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 the final acceptance of construction associated with each set.
 - a. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Construction Manager.
5. Samples for Initial Selection: Submit manufacturer color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit two (2) full sets of available choices:

- i. One (1) to Texas Tech and
 - ii. One (1) to Architect.
 - b. Each sample set is to include color, pattern, texture, or similar characteristics or options to be selected from manufacturer product line.
 - c. Architect will return submittal with sample options selected after consulting with Texas Tech.
6. Samples For Verification:
- a. Submit full-size units or Samples of size indicated,
 - i. Prepared from same material to be used for the Work,
 - ii. Cured and finished in manner specified,
 - iii. Physically identical with material or product proposed for use, and
 - iv. Shows full range of color and texture variations expected.
 - b. Samples include, but are not limited to, the following:
 - i. Partial sections of manufactured or fabricated components,
 - ii. Small cuts or containers of materials,
 - iii. Complete units of repetitively used materials,
 - iv. Swatches showing color, texture, and pattern,
 - v. Color range sets, and
 - vi. Components used for independent testing and inspection.
 - c. Number of samples: Submit two (2) sets of samples.
 - i. Texas Tech and Architect will retain.
 - 1) Construction Manager is required to retain approved sample(s) at jobsite through construction.
 - ii. Submit a single sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - iii. If variation in color, pattern, texture, or other characteristics is inherent in material or product represented by a sample, submit at least three (3) sets of paired units that show approximate limits of variations.
- D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
- 1. Type of product,
 - a. Include unique identifier for each product indicated in Contract Documents or assigned by Contractor, if none is indicated.
 - 2. Manufacturer, product name, and model number, if applicable,

3. Number and name of room or space, and
 4. Location within room or space.
- E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections.
1. Include list of assumptions and summary of loads,
 2. Include load diagrams, if applicable,
 3. Provide name and version of software, if any, used for calculations, and
 4. Number each page of submittal.
- G. Certificates:
1. Certificates and Certifications Submittals: Submit a statement that includes the signature of entity responsible for preparing certification.
 - a. Shall be signed by an officer or other individual authorized to sign documents on behalf of that entity and
 - b. Provide a notarized signature where indicated.
 2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that installer complies with requirements in Contract Documents and, where required, is authorized by manufacturer for this specific Project.
 3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in Contract Documents. Include evidence of manufacturing experience where required.
 4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in Contract Documents.
 5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in Contract Documents.
 6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in Contract Documents.
 - a. Submit record of
 - i. Welding Procedure Specification and
 - ii. Procedure Qualification Record on AWS forms.
 - b. Include names of firms and personnel certified.
- H. Test and Research Reports:
1. Compatibility Test Reports: Submit 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.

2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location for compliance with requirements in Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product for compliance with performance requirements in Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence from a model code organization acceptable to authorities having jurisdiction (AHJ) stating that product complies with the building code in effect for Project. Include the following information:
 - a. Name of evaluation organization,
 - b. Date of evaluation,
 - c. Time period when report is in effect,
 - d. Product and manufacturer names,
 - e. Description of product,
 - f. Test procedures and results and,
 - g. Limitations of use.

1.9 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Construction Manager by Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit PDF file of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Construction Manager to be designed or certified by a Design Professional.
 1. Indicate that products and systems comply with performance and design criteria in Contract Documents. Include list of codes, loads, standards, and other factors used in performing these services.

1.10 CONSTRUCTION MANAGER'S REVIEW

- A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with Contract Documents.
 1. Note corrections and field dimensions.

2. Mark with approval stamp before submitting to Architect.
- B. Construction Manager's Approval: Indicate Construction Manager's approval for each submittal with a uniform approval stamp and in web-based Project software, Trimble Unity Construct (formerly e-Builder). Include name of reviewer, date of Construction Manager's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with Contract Documents.
 1. Architect will not review submittals received from Construction Manager that do not have Construction Manager's review and approval.

1.11 DESIGN PROFESSIONAL'S REVIEW

- A. Action Submittals: Design Professional will review each submittal indicating conformance with design intent, corrections, or revisions required, and return it via Trimble Unity Construct (formerly e-Builder).
 1. PDF Submittals: Design Professional will indicate, via markup on each submittal, the appropriate actions to take for approval.
 2. Submittals by web-based Project software: Design Professional will indicate, in TTUS FP&C Project software website, Trimble Unity Construct (formerly e-Builder), the appropriate action for approval.
- B. Informational Submittals: Design Professional will review each submittal. Submittal will be returned if it does not comply with requirements.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Design Professional.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Design Professional will discard submittals received from sources other than Construction Manager.
- F. Submittals not required by Contract Documents will be returned by Design Professional without action.

PART 2. PRODUCTS (Not Used)

PART 3. EXECUTION (Not Used)

END OF SECTION

SECTION 01 40 00 QUALITY REQUIREMENTS

PART 1. GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 01 Specification Sections apply to this Section.
- B. Texas Tech Uniform General and Supplementary General Conditions Section 00 72 00.
- C. International Building Code, Chapter 17 Special Inspections (current adopted version of municipality).
- D. TTUS FP&C Design & Construction Standards.
- E. FM Global Approvals and Data Sheets.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspection services are required to verify compliance with requirements of the specifications. TTUS FP&C will provide third-party independent materials testing and inspection services for the Project. These services do not relieve the Construction Manager nor their subcontractors of responsibility for compliance with Contract Documents.
 - 1. Specific quality-assurance and quality-control requirements for individual Work results are specified in their respective Specification Sections. Requirements in individual sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions are not intended to limit Construction Manager's other quality-assurance and quality-control procedures that facilitate compliance with Contract Document requirements.
 - 3. Requirements for Construction Manager to provide quality-assurance and quality-control services required by Texas Tech, Commissioning Authority, or authorities having jurisdiction (AHJ) are not limited by the provisions of this Section.
 - 4. Specific test and inspection requirements are not specified in this Section.
- C. Related Requirements:
 - 1. Section 01 42 00 Reference Standards - for minimum Project compliance.
 - 2. Section 01 91 13 General Commissioning Requirements - for minimum commissioning documentation requirements.
 - 3. Authority having jurisdiction (AHJ) certification requirements:
 - a. Fire suppression systems,
 - b. Fire alarm systems,
 - c. Vertical conveyance systems (elevators, lifts, LULA's, etc.),

- d. Texas Accessibility Standards,
- e. Accreditation requirements, and
- f. Other quality requirements as Project scope dictates.

1.3 DEFINITIONS

- A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means:
 - 1. Having successfully completed a minimum of five (5) years previous projects similar in nature, size, and extent to this Project;
 - 2. Being familiar with special requirements indicated; and
 - 3. Having complied with requirements of authorities having jurisdiction (AHJ).
- B. Field Quality-control Tests: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- C. Installer/Applicator/Erector: Contractor or another entity engaged by Construction Manager as an employee, subcontractor, or sub-subcontractor to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.
 - 1. The use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- D. Mockups: Full-size physical assemblies that are constructed on-site either as freestanding temporary built elements or as part of permanent construction.
 - 1. Mockups are constructed to verify selections made under Sample submittals to:
 - a. Demonstrate aesthetic effects and qualities of materials and execution,
 - b. Review coordination, testing, or operation,
 - c. Show interface between dissimilar materials, and
 - d. Demonstrate quality of execution and compliance with specified installation tolerances.
 - 2. Mockups are not samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be evaluated for acceptance by Texas Tech.
 - 3. Laboratory Mockups: Full-size physical assemblies constructed and tested at testing facility to verify performance characteristics.
 - 4. Integrated Exterior Mockups: Mockups of the exterior envelope constructed on-site as freestanding temporary built elements or as part of permanent construction, consisting of multiple products, assemblies, and subassemblies.
 - 5. Room Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes, doors, windows, millwork, casework, specialties, furnishings and equipment, and lighting.
- E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work to verify performance or compliance with specified

criteria.

- F. **Product Tests:** Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction (AHJ), to establish product performance and compliance with specified requirements.
- G. **Source Quality-control Tests:** Tests and inspections that are performed at the source. For example: plant, mill, factory, or shop.
- H. **Testing Agency:** An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. **Quality-assurance Services:** Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- J. **Quality-control Services:** Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect or Construction Manager.

1.4 DELEGATED-DESIGN SERVICES

- A. **Performance and Design Criteria:** Where professional design services or certifications by a design professional are specifically required of Construction Manager by Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If the criterion indicated is not sufficient to perform services or certification required, submit a written request for additional information to Architect.

1.5 CONFLICTING REQUIREMENTS

- A. **Conflicting Standards and Other Requirements:** If compliance with two (2) or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for direction before proceeding.
- B. **Minimum Quantity or Quality Levels:** The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.6 ACTION SUBMITTALS

- A. **Shop Drawings:**
 - 1. Shop Drawings must be project specific and provide, with clarity, details that fully describe the intent of execution for the constructed conditions.
 - 2. Do not submit manufacturer's standard details as Project specific Shop Drawings.
 - 3. Do not submit Design Professional's instruments of service (Construction Documents) as Shop Drawings.

4. Include plans, sections, elevations, and details indicating materials, sizes, and constructed assemblages conveying accurate construction execution intent.
 5. Indicate manufacturer and model number of individual components.
 6. Provide axonometric drawings for conditions difficult to illustrate in two (2) dimensions.
- B. Delegated-design Services Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement signed and sealed by the responsible Design Professional for each product and system specifically assigned to Contractor to be designed or certified by a Design Professional, indicating that the products and systems follow performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.7 INFORMATIONAL SUBMITTALS

- A. Construction Manager's Construction Execution Plan: For site and Work execution logistic planning, phasing, coordination, sequencing, construction schedule management, safety, and regulatory compliance.
- B. Construction Manager's Quality-control Plan: For quality-assurance and quality-control activities and responsibilities.
- C. Construction Manager's Stormwater Pollution Prevention Plan (SWPPP): For active management of stormwater discharge and air pollution controls.
- D. Construction Manager's Security and Safety Plan: For Project site safety for personnel and workers in compliance with OSHA requirements and Texas Tech security compliance requirements relative to Article 7 of Section 00 72 00 Texas Tech Uniform General and Supplementary General Conditions.
- E. Qualification Data: For Construction Manager's quality-control of personnel, subcontractors, and other related vendors.
- F. Construction Manager's Statement of Responsibility: When required by authorities having jurisdiction (AHJ), submit a copy of written statement of responsibility submitted to AHJ before starting Work on the following systems:
 1. Provisional, temporary life and safety, and means of egress facilitation during construction of Work.
 2. Seismic-force-resisting system, designated seismic system, or components listed in IBC Chapter 17 Special Inspections.
 3. Main wind-force-resisting system or a wind-resisting component listed in IBC Chapter 17 Special Inspections.
- G. Laboratory Testing Agency Qualifications: For testing agencies specified under Section 1.10 Quality Assurance to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- H. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 1. Specification Section number and title,
 2. Entity responsible for performing tests and inspections,
 3. Description of test and inspection,
 4. Identification of applicable standards,

5. Identification of test and inspection methods,
 6. Number of tests and inspections required,
 7. Time schedule or time span for tests and inspections,
 8. Requirements for obtaining samples, and
 9. Unique characteristics of each quality-control service.
- I. Submit schedule of specified systems requiring training and reference Specification Section.
 - J. Submit schedule of specified materials listed of extra or attic stock and the quantity required to be delivered to the component institution per the specification.
 - K. Reports: Prepare and submit certified written reports and documents in Trimble Unity Construct (formerly e-Builder) as required under the Agreement.
 - L. Permits, Licenses, and Certificates (if required by Project): For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.
- 1.8 CONTRACTOR'S QUALITY-CONTROL PLAN
- A. Quality-control Plan, General: Submit Construction Manager's quality-control plan within thirty (30) days after Notice to Proceed (NTP), but not less than five (5) days prior to Texas Tech's Preconstruction conference.
 1. Submit in format acceptable to Texas Tech.
 2. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities.
 3. Coordinate with the critical path Construction Schedule.
 - B. Quality-control Personnel Qualifications: Engage qualified personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for the Project.
 1. Project quality-control manager may also serve as Project superintendent.
 - C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
 - D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of the Work requiring testing or inspection, including the following:
 1. Construction Manager performed tests and inspections including Subcontractor performed tests and inspections. Include required tests and inspections and Contractor elected tests and inspections. Distinguish source quality-control tests and inspections from field quality-control tests and inspections.
 2. Special inspections required for regulatory compliance, by the authorities having jurisdiction (AHJ), and as indicated in the Statement of Special Inspections.
 3. Owner's third-party materials testing and inspections indicated within Contract Documents, including tests and inspections indicated to be performed by Commissioning Authority.

- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring Work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports including logs of approved and rejected results. Include:
 - 1. Work Texas Tech representatives and Architect have indicated as nonconforming or defective,
 - 2. Indicate corrective actions taken to bring nonconforming work into compliance with requirements.
 - 3. Comply with requirements of authorities having jurisdiction (AHJ).

1.9 REPORTS AND DOCUMENTS

A. Test and Inspection Reports:

- 1. Texas Tech will provide third-party materials testing and inspection services for the Project for the purpose of verifying constructed conditions are in conformance with the specifications. This testing is not intended to replace Contract Document requirements in which Construction Manager and its subcontractors are required to provide and submit to demonstrate conformance with proposed materials and methods as stipulated by the specifications.
- 2. Construction Manager and its Subcontractor will prepare and submit written reports as required per the specifications and as required by Texas Tech for the following:
 - a. All testing and inspection reports as stipulate under each section of the Project specifications,
 - b. Stormwater Pollution Prevention Plan (SWPPP) inspection documentation,
 - c. Soils analysis testing for import fill, if import fill is used,
 - d. Duct pressure testing for air supply HVAC building systems,
 - e. Water column pressure testing for domestic water piping,
 - f. Pressurized testing for domestic water and fire suppression systems,
 - g. Bacteriological testing for domestic and well water systems,
 - h. Emergency generator load bank testing,
 - i. Arc flash electrical systems testing,
 - j. Lightning protection impedance testing,
 - k. Glazed fenestration water penetration testing,
 - l. Air barrier coverage and proper thickness application,
 - m. Special testing for scheduled special equipment and building systems,
 - n. Commissioning submittals, checklists, and test reporting as required under Section 01 91 13 General Commissioning Requirements, and

- o. Other subcontractor testing, as required, under each section of the specifications, Texas Tech, or Architect.
- B. Include the following on each report:
 - 1. Date of issue,
 - 2. TTUS FP&C project name (title) and project number,
 - 3. Name, address, telephone number, and email address of testing agency,
 - 4. Dates, times, and graphic locations of samples and tests or inspections made,
 - 5. Names of individuals making tests and inspections,
 - 6. Description of the Work and test and inspection method,
 - 7. Identification of product and Specification Section,
 - 8. Complete test or inspection data,
 - 9. Test and inspection results and an interpretation of test results,
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspection,
 - 11. Comments or professional opinion on whether tested or inspected Work complies with Contract Document requirements,
 - 12. Name and signature of laboratory inspector, and
 - 13. Recommendations on retesting and reinspecting.
- C. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
 - 1. Name, address, telephone number, and email address of technical representative making report,
 - 2. Statement on condition of substrates and their acceptability for installation of product,
 - 3. Statement that products at Project site comply with requirements,
 - 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken,
 - 5. Results of operational and other tests and a statement of whether observed performance complies with requirements,
 - 6. Statement whether conditions, products, and installation will affect warranty, and
 - 7. Other required items indicated in individual Specification Sections.
- D. Factory-authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
 - 1. Name, address, telephone number, and email address of factory-authorized service representative making report,

2. Statement that equipment complies with requirements,
3. Results of operational and other tests and a statement of whether observed performance complies with requirements,
4. Statement whether conditions, products, and installation will affect warranty, and
5. Other required items indicated in individual Specification Sections.

1.10 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required. Individual specification sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems like those indicated for this Project and with a record of successful in-service performance as well as sufficient production capacity to produce the required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance as well as sufficient production capacity to produce the required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain specification sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy the qualification requirements indicated and shall be engaged for the activities indicated.
 1. Requirements of authorities having jurisdiction (AHJ) shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented according to Contract Documents, ASTM E 329, and with additional qualifications specified in individual sections, and where required by authorities having jurisdiction (AHJ), that is acceptable to authorities.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Factory-authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for

compliance with specified requirements for performance and test methods, comply with the following:

1. Construction Manager's responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. Build site-assembled test assemblies and mockups using installers who will perform the same tasks for project.
 - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
 - f. When testing is complete, remove test specimens, test assemblies, mockups, and laboratory mockups. Do not reuse products on Project.
 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Texas Tech with copies as indicated by Texas Tech. Interpret tests and inspections and state in each report whether tested and inspected Work complies with or deviates from Contract Documents.
- K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements using materials indicated for the completed Work:
1. Build mockups of size indicated,
 2. Build mockups in location indicated or, if not indicated, as directed by Texas Tech and Architect,
 3. Notify Texas Tech and Architect seven (7) days in advance of dates and times when mockups will be constructed,
 4. Employ supervisory personnel who will oversee mockup construction,
 - a. Employ workers that will be employed to perform the same tasks during the construction of the Work at Project.
 5. Demonstrate the proposed range of aesthetic effects and quality workmanship,
 6. Obtain Texas Tech and Architect's approval of mockups before starting corresponding Work, fabrication, or construction for completion of the Project,
 - a. Allow seven (7) days for initial review and each re-review of each mockup.
 7. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work, and
 8. Demolish and remove mockups when directed unless otherwise indicated.
- L. Integrated Exterior Mockups: Construct integrated exterior mockup if authorized by Texas Tech. Coordinate installation of exterior envelope materials and products for which mockups are required

in individual specification sections, along with supporting materials, if approved by Texas Tech. Comply with requirements "Mockups" Paragraph.

- M. Room Mockups: Construct room mockups incorporating required materials and assemblies and finished according to requirements. Provide required lighting and additional lighting where required to enable Texas Tech and Architect to evaluate quality of the Work. Comply with requirements in "Mockups" Paragraph.
- N. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual specification sections.

1.11 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 - 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
 - 2. Costs for retesting and reinspecting construction that replaces or is necessitated by executed Work that failed to comply with Contract Documents will be charged to Construction Manager, and Contract Sum will be adjusted by Construction Change Proposal (CCP) in Trimble Unity Construct (formerly e-Builder).
- B. Construction Manager's Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
 - 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction (AHJ). Perform quality-control services required of Construction Manager by AHJ, whether specified or not.
 - 2. Engage a qualified testing agency to perform quality-control services.
 - 3. Notify testing agencies at least forty-eight (48) hours in advance of time when Work that requires testing or inspection will be performed.
 - 4. Where quality-control services are indicated as Construction Manager's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 - 5. Testing and inspection requested by Construction Manager and not required by Contract Documents are Construction Manager's responsibility.
 - 6. Submit additional copies of each written report directly to authorities having jurisdiction (AHJ) when so directed.
- C. Retesting and/or Reinspecting: Regardless of whether original tests or inspections were Construction Manager's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with Contract Documents.
- D. Construction Manager's Testing Agency Responsibilities: Cooperate with Texas Tech, Texas Tech's Construction Manager Agent, if part of team, and Construction Manager in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify Texas Tech, Architect, and Construction Manager promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written electronic true (searchable) PDF report of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform duties of Construction Manager.
- E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 33 00 Submittals.
- F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of installer activities, inspection of completed portions of the Work, and submittal of written reports.
- G. Construction Manager's Associated Responsibilities for Testing of Work: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work,
 2. Incidental labor and facilities necessary to facilitate tests and inspections,
 3. Adequate quantities of representative samples of materials that require testing and inspection,
 - a. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples,
 5. Delivery of samples to testing agencies,
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency, and
 7. Security and protection for samples and for testing and inspection equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.
1. Schedule times for tests and inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by Contract Documents.
1. Coordinate and submit concurrently with Construction Manager's critical path Construction Schedule.

2. Update as the Work progresses.
3. Distribution: Distribute schedules to Texas Tech and Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.12 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Texas Tech will engage a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction (AHJ) as a responsibility of the current adopted version of IBC Chapter 17, Special Inspections. The Construction Manager's responsibilities for special tests and inspections are as follows:
 1. Verify that manufacturer maintains detailed fabrication and quality-control procedures and review the completeness and adequacy of those procedures to perform the Work,
 2. Notify Texas Tech and Architect promptly of irregularities and deficiencies observed in the Work during performance of its services,
 3. Submit a certified written report of each test, inspection, and similar quality-control service to Texas Tech and Architect with copy to subcontractor and to authorities having jurisdiction (AHJ),
 4. Submit a final report of special tests and inspections at Substantial Completion which includes a list of unresolved deficiencies, and
 5. Retest and reinspect corrected work.

PART 2. PRODUCTS (Not Used)

PART 3. EXECUTION

3.1 ACCEPTABLE TESTING AGENCIES

- A. Select and utilize a Materials Testing and Inspection firm from Texas Tech's professional services pre-qualification list.

3.2 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 1. Date test or inspection was conducted,
 2. Description of the Work tested or inspected,
 3. Date test or inspection results were transmitted to Texas Tech and Architect, and
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain logs at Project site. Post changes and revisions as they occur. Provide access to test and inspection logs for Texas Tech and Architect's reference during normal working hours.
 1. Submit logs at Project Closeout as part of Project Record Documents.

3.3 REPAIR AND PROTECTION

- A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other specification sections or matching existing substrates and finishes.
 2. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
 3. Comply with Contract Document requirements for cutting and patching.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are construction manager's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 01 42 00 REFERENCE STANDARDS

PART 1. GENERAL

1.1 RELATED DOCUMENTS

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

1.2 STANDARDS

- A. Reference to standards, codes, Specifications, recommendations, and regulations refer to the latest edition or printing prior to date of issue of Contract Documents.
- B. Applicable portions of standards listed that are not in conflict with Contract Documents are hereby made a part of the Specifications.
- C. Modifications or exceptions to Standards shall be considered as amendments and unmodified portions shall remain in full effect. In cases of discrepancies between standards, the more stringent requirements shall govern.
- D. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with Contract Documents.

- 1. Where copies of standards are needed to perform a required construction activity, the Contractor shall obtain copies directly from the publication source.

1.3 SCHEDULE OF STANDARDS

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| AA | Aluminum Association 1525. Wilson Boulevard, Suite 600, Arlington, VA 22209 703-3582960 fax 703-358-2961 http://www.aluminum.org/ |
| AABC | Associated Air Balance Council 1518 K St., NW Washington, DC 20005 (202) 737 0202 http://www.aabchq.com/ |
| AAMA | American Architectural Manufacturers Assoc. 1827 Walden Office Square, Suite 550 Schaumburg, IL 60173-4268 Phone: (847) 303-5664 Fax: (847) 303-5774 http://www.aamanet.org/ |
| AAN | American Association of Nurserymen 1250 I St., NW, Suite 500 Washington, DC 20005 (202) 789 2900 |

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| ANLA | American Nursery and Landscape Association 1000 Vermont Avenue, NW, Suite 300 Washington D.C. 20005 – 4914 202-789-2900 http://www.anla.org/index.htm |
| AASHTO | American Association of State Highway and Transportation Officials 444 North Capitol St., Suite 225 Washington, DC 20001 (202) 624 5800 http://www.transportation.org/ |
| ACI | American Concrete Institute 38800 Country Club Dr. Farmington Hills, MI 48331 USA Phone: 248-848-3700 Fax: 248-848-3701 http://www.aci-int.org/general/home.asp |
| ACIL | American Council of Independent Laboratories 1629 K St., NW Washington, DC 20006 (202) 887 5872 http://www.acil.org/ |
| ACPA | American Concrete Pipe Assoc. 1303 West Walnut Hill Lane, Suite 305 Irving, Texas 75038-3008 Phone (972) 506-7216 Fax (972) 506-7682 http://www.concrete-pipe.org |
| ADC | Air Diffusion Council 1901 N. Roselle Road, Suite 800 Schaumburg, Illinois 60195 Tel: (847) 706-6750 Fax: (847) 706-6751 http://www.flexibleduct.org/ |
| AI | Asphalt Institute 2696 Research Park Drive Lexington, KY 40512 4052 (606) 288 4960 http://www.asphaltinstitute.org/ai_pages/Seminars/index.asp |
| AIA | American Institute of Architects 1735 New York Ave., NW Washington, DC 20006 (202) 626 7300 http://www.aia.org/ |
| AIHA | American Industrial Hygiene Assoc. |

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| | <p>P 2700 Prosperity Ave., Suite 250 Fairfax, VA 22031 (703) 849-8888 http://www.aiha.org/Content</p> |
| AISC | <p>American Institute of Steel Construction One East Wacker Drive, Suite 3100 Chicago, IL 60601 2001 (312) 670-2400 http://www.aisc.org/</p> |
| AISI | <p>American Iron and Steel Institute 1140 Connecticut Ave., NW Suite 705 Washington, D.C. 20036 202.452.7100 http://www.steel.org//AM/Template.cfm?Section=Home</p> |
| AITC | <p>American Institute of Timber Construction 7012 S. Revere Parkway Suite 140 Centennial, CO 80112 Phone: (303) 792-9559 FAX: (303) 792-0669 http://www.aitc-glulam.org/</p> |
| ALI | <p>Associated Laboratories, Inc. 500 S. Vermont St. Palatine, IL 60067 (800) 685-0026 http://www.associatedlabs.org/</p> |
| ALSC | <p>American Lumber Standards Committee P.O. Box 210 Germantown, MD 20875 (301) 972 1700 http://www.alsc.org/</p> |
| AMCA | <p>Air Movement and Control Assoc. 30 W. University Drive Arlington Heights, IL 60004 1893 (847) 394-0150 http://www.amca.org/</p> |
| ANSI | <p>American National Standards Institute 1819 L Street, NW, 6th Fl. Washington, DC, 20036 Tel: 202.293.8020 Fax: 202.293.9287 http://www.ansi.org/</p> |
| APA | <p>American Plywood Assoc. 7011 So. 19th, Tacoma, WA 98466</p> |

Tel: (253) 565-6600
 Fax: (253) 565-7265
<http://www.apawood.org/>

ARI Air Conditioning and Refrigeration Institute
 4100 North Fairfax Drive, Suite 200
 Arlington, Virginia 22203
 (703) 524-8800
 (703) 528-3816 FAX
<http://www.ari.org/>

ARMA Asphalt Roofing Manufacturers Assoc.
 Public Information Department
 1156 - 15th Street, NW., Suite 900
 Washington, DC 20005
 Tel: 202 / 207-0917 / Fax: 202 / 223-9741
<http://www.asphaltroofing.org/>

ASA Acoustical Society of America
 2 Huntington Quadrangle, Suite 1N01
 Melville, NY 11747-4502
 Phone: (516) 576-2360
 Fax: (516) 576-2377
<http://asa.aip.org/>

ASC Adhesive and Sealant Council
 7979 Old Georgetown Road, Suite 500 |
 Bethesda, Maryland 20814
 Phone: (301) 986-9700 | Fax: (301) 986-9795
<http://www.ascouncil.org/>

ASHRAE American Society of Heating, Refrigerating
 and Air Conditioning Engineers
 1791 Tullie Circle, NE
 Atlanta, GA 30329
 Phone: (404) 636-8400
 Fax: (404) 321-5478
<http://www.ashrae.org/>

ASME American Society of Mechanical Engineers
 Three Park Avenue
 New York, NY 10016-5990
 800-843-2763 (U.S./Canada)
<http://www.asme.org/>

ASPE American Society of Plumbing Engineers
 8614 Catalpa Avenue, Suite 1007
 Chicago, IL 60656-1116
 Phone: (773) 693-ASPE (2773)
 Fax: (773) 695-9007
<http://www.aspe.org/>

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| ASSE | American Society of Sanitary Engineering 901 Canterbury, Suite A Westlake, OH 44145 Phone - 440.835.3040 / FAX - 440.835.3488 http://www.asse-plumbing.org/ |
| ASTM | American Society for Testing and Materials 100 Barr Harbor Drive West Conshohocken, Pennsylvania, 19428-2959 USA Phone: (610) 832-9500 Fax: (610) 832-9555 http://www.astm.org |
| AWCMA | American Window Covering Manufacturers Assoc. 355 Lexington Ave, 17th Floor New York, NY 10017 Phone: (212) 297-2122 / Fax: (212) 370-9047 http://www.wcmanet.org |
| AWI | Architectural Woodwork Institute 46179 Westlake Drive, Suite 120 Potomac Falls, VA 20165 phone 571-323-3636 / fax 571-323-3630 http://www.awinet.org/ |
| AWPA | American Wood Preservers' Assoc. P.O. Box 361784 Birmingham, AL 35236-1784 Telephone: 205-733-4077 http://www.awpa.com/ |
| AWPB | American Wood Preservers Bureau 4 E. Washington St. Newnan, GA 30263 (404) 254 9877 |
| AWS | American Welding Society 50 N.W. LeJeune Road, Miami, Florida 33126 Phone: 800-443-9353 or 305-443-9353 http://www.aws.org/w/a/ |
| BHMA | Builders' Hardware Manufacturers Assoc. 355 Lexington Ave., 15th Floor New York, NY 10017 Tel: (212) 297-2122 / Fax: (212) 370-9047 http://www.buildershardware.com/ |
| BIA | The Brick Industry Association 1850 Centennial Park Drive, Suite 301, Reston, VA 20191 Phone: 703.620.0010 Fax: 703.620.3928. http://www.bia.org/ |

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| BIFMA | Business and Institutional Furniture Manufacturers Assoc. 2680 Horizon Drive, SE / Suite A-1 Grand Rapids, MI 49546-7500 Phone: 616-285-3963 / Fax: 285-3765 http://www.bifma.org/ |
| CFFA | Chemical Fabrics & Film Association, Inc. c/o Thomas Associates, Inc. 1300 Sumner Ave. Cleveland, OH 44115 2851 (216) 241 7333 http://www.chemicalfabricsandfilm.com/index.html |
| CISCA | Ceiling and Interior Systems Construction Assoc. 5700 Old Orchard Road, 1st Floor Skokie, IL 60077 (708) 965 2776 http://www.cisca.org/ |
| CISPI | Cast Iron Soil Pipe Institute 5959 Shallowford Road, Suite 419 Chattanooga, TN 37421 Phone: (615) 892 0137 / Fax: 423-892-0817 http://www.cispi.org/ |
| CRI | Carpet and Rug Institute P.O. Box 2048 Dalton, GA 30722 (404) 278 3176 Phone: 706-278-3176 Fax: 706-278-8835 http://www.carpet-rug.org/ |
| CRSI | Concrete Reinforcing Steel Institute 933 North Plum Grove Road Schaumburg, IL 60173-4758 Phone: 847.517.1200 / Fax: 847.517.1206 http://www.crsi.org/ |
| CTIOA | Ceramic Tile Institute of America 12061 Jefferson Blvd Culver City, CA 90230-6219 Phone: (310) 574-7800 / Fax: (310) 821-4655 http://www.ctioa.org/ |
| DHI | Door and Hardware Institute 14150 Newbrook Dr., Suite 200 Chantilly, VA 20151 Telephone: 703.222.2010 / Fax: 703.222.2410 http://www.dhi.org/ |
| ETL | ETL Testing Laboratories, Inc. P.O. Box 2040 Route 11, Industrial Park Cortland, NY 13045 |

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| | (607) 753 6711 http://www.etl.com/ |
| ECDS | Energy Conservation Design Standards for New State Buildings State Energy Conservation Office Texas Facilities Commission P.O. Box 13047 Austin, TX 78711-3047 |
| FGMA | Flat Glass Marketing Assoc. The Flat Glass Marketing Association, Glass Tempering Association, and members of the Laminators Safety Glass Association consolidated to form the Glass Association of North America. 2495 SW Wanamaker Drive, Suite A Topeka, KS 66614 Phone: (785) 271-0208 / Fax: (785) 271-0166 http://www.glasswebsite.com/publications/default.asp |
| FM | Factory Mutual Research Organization 1151 Boston Providence Turnpike P.O. Box 9102 Norwood, MA 02062 (617) 762 4300 |
| GA | Gypsum Association 810 First St., NE, #510 Washington DC, 20002 Phone: 202-289-5440; Fax: 202-289-3707 http://www.gypsum.org/ |
| HMA | Hardwood Manufacturers Assoc. 400 Penn Center Blvd., Suite 530 Pittsburgh, PA 15235 Phone - (412) 829-0770 Fax - (412) 829-0844 http://www.hmamembers.org/ |
| HPMA | Hardwood Plywood Manufacturers Assoc. (Formerly HPMA) 1825 Michael Farraday Drive Reston, VA 20190 Phone: (703) 435 2900 / Fax: (703) 435-2537 http://www.hpva.org/ |
| IBC | International Building Code International Code Council 500 New Jersey Ave., NW, 6th Floor Washington, DC 20001-2070 |
| IBD | Institute of Business Designers 341 Merchandise Mart Chicago, IL 60654 (312) 647 1950 |

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| ICC | International Code Council 500 New Jersey Avenue, NW, 6th Floor Washington, DC 20001 [P] 1-888-ICC-SAFE (422-7233); [F] (202) 783-2348; http://www.iccsafe.org/ |
| IECC | International Energy Conservation Code http://www.iccsafe.org/ |
| IEEE | Institute of Electrical and Electronic Engineers 3 Park Avenue, 17th Floor New York, N.Y., 10016-5997 USA Phone: 212 419 7900 / Fax: 212 752 4929 http://www.ieee.org/portal/site |
| IESNA | Illuminating Engineering Society of North America 120 Wall Street, Floor 17 New York, NY 10005 tel: 212-248-5000 / fax: 212-248-5017/18 http://www.iesna.org/ |
| IFC | International Fire Code http://www.iccsafe.org/ |
| IGCC | Insulating Glass Certification Council c/o ETL Testing Laboratories, Inc. PO Box 9 Henderson Harbor, NY 13651 Phone: (315) 646-2234 / Fax: (315) 646-2297 http://www.igcc.org/ |
| ILI | Indiana Limestone Institute of America 400 Stone City Bank Bldg. Bedford, Indiana 47421 Phone: 812-275-4426 FAX: 812-279-8682 http://www.iliai.com/ |
| IPC | International Plumbing Code http://www.iccsafe.org/ |
| ISA | Instrument Society of America 67 Alexander Drive, Research Triangle Park, NC 27709 USA Phone (919) 549-8411 FAX (919) 549-8288 http://www.isa.org/ |
| LIA | Lead Industries Association, Inc. Sparta, New Jersey http://leadinfo.com |
| LPI | Lightning Protection Institute |

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| | <p>25475 Magnolia Drive P.O. Box 99 Maryville, MO 64468 (800) 488-6864 http://www.lightning.org/</p> |
| MBMA | <p>Metal Building Manufacturer's Assoc. 1300 Sumner Ave Cleveland, OH 44115-2851 Phone: (216) 241-7333 / Fax: (216) 241-0105 http://www.mbma.com/</p> |
| MCAA | <p>Mechanical Contractors Association of America 1385 Piccard Drive Rockville, MD 20850 Phone: 301-869-5800 / Fax: 301-990-9690 http://www.mcaa.org/</p> |
| MFMA | <p>Maple Flooring Manufacturers' Assoc. 60 Revere Drive, Suite 500 Northbrook, IL 60062 Phone: 888 480-9138 / Fax: 847 480-9282 http://www.maplefloor.org/</p> |
| MIA | <p>Marble Institute of America 28901 Clemens Rd, Ste 100 Cleveland, OH 44145 T: 440-250-9222 · F: 440-250-9223 http://www.marble-institute.com/</p> |
| ML/SFA | <p>Metal Lath/Steel Framing Assoc. (A Division of the National Association of Architectural Metal Manufacturers) 800 Roosevelt Rd.. Bldg. C, Suite 312 Glen Ellyn, IL 60137 Telephone: (630) 942-6591 / Fax: (630) 790-3095 http://www.naamm.org/index.html</p> |
| NAAMM | <p>National Association of Architectural Metal Manufacturers 800 Roosevelt Rd.. Bldg. C, Suite 312 Glen Ellyn, IL 60137 Telephone: (630) 942-6591 / Fax: (630) 790-3095 http://www.naamm.org/index.html</p> |
| NAIMA | <p>North American Insulation Manufacturers Assoc. 44 Canal Center Plaza, Suite 310 Alexandria, VA 22314 Phone: (703) 684-0084 / Fax: (703) 684-0427 http://www.naima.org/</p> |
| NAPA | <p>National Asphalt Pavement Assoc. NAPA Building 5100 Forbes Blvd.</p> |

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| | Lanham, MD 20706 888-HOT-MIXX (468-6499) http://www.hotmix.org/ |
| NCMA | National Concrete Masonry Assoc. 13750 Sunrise Valley Drive Herndon, VA 20171-4662 Phone: 703.713.1900 / Fax: 703.713.1910 http://www.ncma.org/ |
| NEC | National Electrical Code (from NFPA) |
| NECA | National Electrical Contractors Assoc. 3 Bethesda Metro Center, Suite 1100 Bethesda, MD 20814 Phone: (301) 657-3110 Fax: (301) 215-4500 http://www.necanet.org/ |
| NEII | National Elevator Industry, Inc. 1677 County Route 64 P.O. Box 838 Salem, New York 12865-0838 Tel. 518-854-3100 / Fax. 518-854-3257 http://www.neii.org/ |
| NEMA | National Electrical Manufacturers Assoc. 1300 North 17th Street, Suite 1752 Rosslyn, Virginia 22209 Phone: (703) 841-3200 / Fax: (703) 841-5900 http://www.nema.org/ |
| NFPA | National Fire Protection Assoc. 1 Batterymarch Park Quincy, Massachusetts USA 02169-7471 Tel: (617) 770-3000 / Fax: +1 617 770-0700 http://www.nfpa.org/ |
| AF&PA | American Forest & Paper Association (Formerly National Forest Products Association NFPA). 1111 Nineteenth Street, NW, Suite 800 Washington, DC 20036 Phone: 1-800-878-8878, 1-202-463-2700 http://www.afandpa.org/ |
| NHLA | National Hardwood Lumber Assoc. 6830 Raleigh-LaGrange Road Memphis, TN 38184-0518 (901) 377-1818 http://www.natlhardwood.org/ |
| NLGA | National Lumber Grades Authority #302 – 960 Quayside Drive |

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| | <p>New Westminster, BC V3M 6G2 CANADA Tel: (604) 524-2393 / Fax: (604) 524-2893 http://www.nlga.org/</p> |
| NPA | <p>National Particleboard Assoc. 18928 Premiere Court Gaithersburg, MD 20879-1569 301/670-0604 FAX 301/840-1252 http://www.pbmdf.com/</p> |
| NPCA | <p>National Paint and Coatings Assoc. 1500 Rhode Island Ave., NW Washington, DC 20005 Phone: (202) 462-6272 / Fax: (202) 462-8549 http://www.paint.org/index.htm</p> |
| NRCA | <p>National Roofing Contractors Assoc. 10255 W. Higgins Rd., Suite 600 Rosemont, IL 60018 5607 Phone (708) 299 9070 / Fax: (847) 299-1183 http://www.nrca.net/</p> |
| NTMA | <p>National Terrazzo and Mosaic Assoc. 201 North Maple, Suite 208 Purcellville, VA 20132 Phone: 540-751-0930 / 800-323-9736 / Fax: 540-751-0935 http://www.ntma.com/</p> |
| NWWDA | <p>National Wood Window and Door Assoc. 1400 E. Touhy Ave. Des Plaines, IL 60018 Tel. (800) 223 2301/ Fax: (708) 299 1286</p> |
| PCA | <p>Portland Cement Assoc. 5420 Old Orchard Road Skokie, IL 60077 Phone: (847) 966 6200 / Fax: (847) 966-8389 http://www.cement.org/</p> |
| PCI | <p>Precast/Prestressed Concrete Institute 209 W. Jackson Blvd. #500 Chicago, IL 60606 Tel. (312) 786 0300 / Fax: 312-786-0353 http://www.pci.org/intro.cfm</p> |
| RFCI | <p>Resilient Floor Covering Institute 401 East Jefferson Street, Suite 102 Rockville, Maryland 20850 Telephone: 301-340-8580 / Fax: 301-340-7283 http://www.rfci.com/index.htm#</p> |
| RMA | <p>Rubber Manufacturers Assoc.</p> |

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| | <p>1400 K St., NW, Suite 900 Washington, DC 20005 (202) 682 4800 http://www.rma.org/</p> |
| SDI | <p>Steel Deck Institute P.O. Box 25 Fox River Grove, IL 60021 phone: 847-458-4647 / fax: 847-458-4648 http://www.sdi.org/</p> |
| S.D.I. | <p>Steel Door Institute The Steel Door Institute is managed by: Wherry Associates 30200 Detroit Road Cleveland, OH 44145-1967 phone: 440.899.0010 / fax: 440.892.1404 http://www.steeldoor.org/</p> |
| SECO | <p>State Energy Conservation Office LBJ State Office Building 111 E. 17th Street, Room 1114 Austin, TX 78701 Phone: (512) 463-1931 / FAX: (512) 475-2569 http://www.seco.cpa.state.tx.us/</p> |
| SGCC | <p>Safety Glazing Certification Council PO Box 730 Sackets Harbor, NY 13685 Phone: (315) 646-2234 / (315) 646-2297 http://www.sgcc.org/</p> |
| SIGMA | <p>Sealed Insulating Glass Manufacturers Assoc. 401 N. Michigan Chicago, IL 60611 (312) 644 6610 http://www.sigmaonline.org</p> |
| SJI | <p>Steel Joist Institute 3127 Mr. Joe White Avenue Myrtle Beach, SC 29577-6760 Phone: (843) 626-1995 / Fax: (843) 626-5565 http://www.steeljoist.org/</p> |
| SMACNA | <p>Sheet Metal and Air Conditioning Contractors National Association 4201 Lafayette Center Drive Chantilly, Virginia 20151-1209 Tel (703) 803-2980 - Fax (703) 803-3732 http://www.smacna.org/</p> |
| SPIB | <p>Southern Pine Inspection Bureau P.O. Box 10915 Pensacola, Fl. 32524-0915 Office: (850) 434-2611 Fax: (850) 433-5594 http://www.spib.org/</p> |

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| SPRI | Single Ply Roofing Institute 77 Rumford Avenue, Suite 3B Waltham, MA 02453 Phone: 781-647-7026 • Fax: 781-647-7222 http://www.spri.org/ |
| TCA | Tile Council of America 100 Clemson Research Blvd. Anderson, SC 29625 Phone: 864-646-8453 / Fax: 864-646-2821 http://www.tileusa.com/profile_main.htm |
| TIMA | Thermal Insulation Manufacturers Assoc. 29 Bank Street Stamford, CT 06901 (203) 324 7533 (Standards now issued by NAIMA, http://www.naima.org/) |
| UFAC | Upholstered Furniture Action Council Box 2436 High Point, NC 27261 (919) 885 5065 http://www.ufac.org/ |
| UL | Underwriters Laboratories, Inc. 333 Pfingsten Road Northbrook, IL 60062-2096 USA Phone: 847-272-8800 / Fax: 847-272-8129 http://www.ul.com/ |
| WSFI | Wood and Synthetic Flooring Institute 4415 W. Harrison St., Suite 242 C Hillside, IL 60162 (708) 449 2933 |
| WWPA | Western Wood Products Assoc. 522 SW Fifth Ave. Suite 500, Portland, Oregon 97204-2122 Tel: 503-224-3930 Fax: 503-224-3934 http://www.wwpa.org/ |
| W.W.P.A. | Woven Wire Products Assoc. 2515 N. Nordica Ave. Chicago, IL 60635 (312) 637 1359 http://www.wovenwire.org/ |

1.4 GOVERNMENT AGENCIES

| | |
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| CPSC | Consumer Product Safety Commission 4330 East West Highway Bethesda, MD 20814 General Information: (301) 504-7923 M-F 8:00 am - 4:30 pm ET |
|------|--|

| | |
|------|---|
| | <p>Fax: (301) 504-0124 and (301) 504-0025 http://www.cpsc.gov/</p> |
| CS | <p>Commercial Standard (U.S. Department of Commerce) 1401 Constitution Ave., NW Washington, DC 20230 Phone: (202) 482-2000 http://www.commerce.gov/</p> |
| DOC | <p>U.S. Department of Commerce 1401 Constitution Ave., NW Washington, DC 20230 Phone: (202) 482-2000 http://www.commerce.gov/</p> |
| EPA | <p>Environmental Protection Agency 1445 Ross Avenue (maps) Suite 1200 Dallas, Texas 75202 (214) 665-6444 http://www.epa.gov/</p> |
| FS | <p>Federal Specification (from GSA) Specifications Unit (WFSIS) 7th and D St., SW Washington, DC 20407 (202) 708 9205 http://apps.fss.gsa.gov/pub/fedspecs/search.cfm</p> |
| GSA | <p>General Services Administration 1800 F Street, NW Washington, DC 20405 (202) 708 5082 http://www.gsa.gov/Portal/gsa/ep/home.do?tabId=0</p> |
| GSC | <p>Texas Building and Procurement Commission 1711 San Jacinto Austin, TX 78701 (512) 463-6363 http://www.tbpc.state.tx.us/</p> |
| NIST | <p>National Institute of Standards and Technology 100 Bureau Drive, Stop 1070, Gaithersburg, MD 20899-1070 Phone: (301) 975-NIST (6478) or TTY (301) 975-8295 http://www.nist.gov/</p> |
| OSHA | <p>Occupational Safety and Health Administration Federal Office Building 1205 Texas Avenue, Room 806 Lubbock, Texas 79401 Phone: (806) 472-7681 (7685) / Fax: (806) 472-7686 http://www.osha.gov/</p> |
| PS | <p>Product Standard of NBS (U.S. Department of Commerce)</p> |

Washington, DC 20230
(202) 482 2000
<http://www.thenbs.com/products/default.asp>

USDA

U.S. Department of Agriculture
1400 Independence Ave., S.W.
Washington, DC 20250
(202) 447 2791
<http://www.usda.gov/wps/portal/usdahome>

END OF SECTION 01 42 00

SECTION 01 50 00 TEMPORARY FACILITIES AND CONTROLS

PART 1. GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to this section.

1.2 PROTECTION OF SITE

- A. Contractor shall furnish measures for protection of the public, workmen and property, including structural engineering, maintenance, and operation of such facilities.

1.3 EXECUTION OF WORK

- A. Contractor shall provide measures for executing work related to this project, including, but not limited to, structural engineering, cranes, hoists, chutes, movement of personnel, materials, equipment, temporary heating, and operation and maintenance of such facilities.

1.4 EXISTING UNDERGROUND UTILITIES

- A. Existing underground lines occur in the site where the work is to be done. The Contractor shall visit the site and determine the location of all utility lines. Existing lines shown on the drawing are not guaranteed as to size and location or for completeness. Any utility line which interferes with the new construction shall be relocated or rerouted by the Contractor as directed by the Design Professional and Texas Tech. Removal or rerouting of any portion of an existing landscape irrigation system by the Contractor shall be accomplished under the direction of a licensed landscape irrigator and Texas Tech. All salvaged landscape irrigation material shall be delivered to the Department of Grounds Maintenance.

1.5 SCAFFOLDING, BARRICADES, ENCLOSURES

- A. The Contractor shall furnish, erect, and maintain for the duration of the work as required, all scaffold, runways, guard rails, platforms and similar temporary construction as may be necessary for the performance of the Contract. Such facilities shall be of type and arrangement as required for their specific use and comply with all applicable laws and regulations of the Occupational Safety and Health Act.
- B. The Contractor shall provide, install, and maintain for the duration of work all necessary solid barricades, warning signs and signals, and shall take all other precautions to safeguard persons, adjoining property, including improvements thereon, against injuries and damages of every nature whatsoever.
- C. Parts and structures and other work in place that are subject to injury because of the operations being carried on adjacent thereto, shall be covered, boarded up or substantially enclosed with adequate protection. This includes but is not limited to existing structures to remain, adjacent existing structures where no work is indicated, existing landscaping features scheduled to remain and existing site features scheduled to remain.
- D. Temporary enclosures, both dust proof and sound treated, shall be provided whenever Texas Tech's existing operation requires such separation from construction dirt and noise.

1.6 GUARDRAILS AND BARRICADES

- A. Provide guardrails, handrails, and covers for floor, roof, and wall openings, and for stairways installed or construction by Contractor's forces.

- B. If movement of these protective facilities is required to perform work, it will be the responsibility of the Contractor to replace the said protections in a satisfactory manner.
- C. Provide all barricades required to protect all natural resources and site improvements.

1.7 STAIRS, LADDERS, HOISTS, ETC.

- A. Provide temporary stairs, scaffolding and ladders as may be required for the use of all workmen and inspectors.
- B. Install and operate such material hoists as may be necessary to perform the work properly and expeditiously.

1.8 YARD REPAIRS

- A. Where compaction of the soil has occurred in turf or other plant material areas within the area of construction, the areas shall be rejuvenated by deep cultivation of the compacted soil. After completion of the construction, the Contractor shall scarify the construction site within the established construction limits. Scarifying shall be to a minimum depth of eight (8) to ten (10) inches except within a thirty-foot radius of trees where scarifying shall be a maximum of six (6) inches in depth. The surface shall be roto-tilled to a depth of four (4) to six (6) inches, hand raked to remove any material greater than three-quarter (3/4) inch in diameter, and reshaped to prepare a suitable seedbed. The Contractor shall furnish and install either Bermuda grass sod or Bermuda grass seed to the rejuvenated area, depending on the season. Seeding will be allowed only between May 1st - August 1st.
- B. Bermuda grass sod shall be supplied by a reputable turf grower and placed the same day of cutting by the supplier. Sod shall be laid solid and thoroughly rolled with a smooth steel roller of sufficient weight to insure a firm, level surface. If necessary, a top dressing of fine, clean, brick sand shall be applied to effect a smooth even finish. Finished grade of grass shall be flush with existing walkways. Contractor shall thoroughly water grass immediately following installation and not less than twice per week until final acceptance.
- C. Bermuda grass seed shall be of 98% purity and 95% germination, applied at the rate of two (2) pounds per 1000 square feet. The seedbed shall be cultivated sufficiently to reduce the soil to a state where the soil particles on the surface are small enough and lie closely enough together to prevent the seed from being covered too deep for optimum germination. The cross-section previously established shall be maintained throughout the process of cultivation and any necessary reshaping shall be done prior to any planting of seed. The seed shall be uniformly distributed over the area. If sowing seed by hand, rather than by mechanical methods, the seed shall be sown in two directions or right angles to each other. If mechanical equipment is used, the seed shall be applied at the specified rate. Distributed grass seed shall be covered lightly by hand raking or by dragging with a brush or mat in two directions. Firm the seeded area with a light empty roller (30 lb.) or cultipacker. When rolling, soil should not be pushed by the roller or scuffed when turning. Seeded areas should be kept moist until well established. Once seeds have begun to germinate they must not be allowed to dry out and die. Avoid saturating the soil, light applications of water should be made several times daily, if necessary, to insure that the top one-half (1/2) inch of soil is moist at all times.

1.9 TEMPORARY FIELD OFFICES

- A. The Contractor shall furnish and maintain during construction of the project, adequate facilities at the site for the use of the Contractor, Owner's Representative and Texas Tech Program Director.
- B. The Prime Contractors and the Subcontractors shall maintain office and storage facilities on the site as may be necessary for the proper conduct of the work. These shall be located so as to cause no interference to any work to be performed on the site. The Program Director shall be consulted with regard to locations.

- C. Upon completion of the project, or as directed by the Program Director, the Contractor shall remove all such temporary structure and facilities from the site and leave the premises in the condition required by the Contract Documents.

1.10 INTERNET CONNECTIVITY

- A. Contractor shall provide, maintain, and pay for internet service for his own use, the Design Professional, and all Subcontractors for the duration of the work.

1.11 PROTECTED STORAGE

- A. Provide on the premises, at locations approved by Texas Tech, suitable substantial watertight, securable storage sheds for storage of tools and all materials which might be damaged if exposed to the weather. Texas Tech will not be responsible for lost or stolen Contractor/subcontractor's tools.
- B. Maintain such buildings in good condition, and remove them when directed.
- C. Raise floors at least six (6) inches above the ground, on heavy joists or sleepers.
- D. Materials: Contractor shall construct temporary facilities of rough or smooth clean lumber as usage requires. Faces exposed to public shall be smooth surfaced, neatly assembled, firmly braced, and painted a minimum of two (2) coats, colors as approved by The Texas Tech Program Director.

1.12 TOILETS

- A. The Contractor shall provide chemical toilet facilities for all workers and shall remove same at completion of the work. Toilets shall be completely enclosed and of neat appearance and shall be located as directed. Toilets are required to be staked down per the Storm Water Pollution Protection Plan for the project.

1.13 SECURITY

- A. Construction security is the responsibility of the Contractor; however, Texas Tech shall have the right of access to the construction site.

1.14 WATCHMAN

- A. The Contractor may, at its option, employ watchman service when work is not being carried on. However, no liability shall be attached to the General Contractor in this respect except in the protection of his own interest.

1.15 CONSTRUCTION FENCE

- A. Shall be a minimum of six foot (6') high chain link fence with steel posts and gates. The fence may be of new or of salvage materials with minimum bracing required for stability. Upon completion of the project the fence and appurtenances shall be removed. The construction fence shall be kept neat and orderly, free from accumulations of trash and weeds.

1.16 TEMPORARY HEAT AND HVAC CONTROLS

- A. Provide temporary heating apparatus and operating fuel as necessary for the proper protection of work. Do not damage work.
- B. The Contractor shall furnish temporary connections to the permanent heating or ventilation system as required to maintain operations of all existing HVAC systems. The Contractor shall maintain functionality of all existing HVAC systems required for all occupied spaces of the construction site. The Contractor shall restore the system to full functionality before turning over to Texas Tech. This shall in no way affect the guarantee period, which shall start at final acceptance of all work.

1.17 TEMPORARY UTILITIES

- A. The Contractor shall arrange for temporary utilities as may be required for the proper execution of the work. The Contractor, at its option, may extend existing water, gas, and electrical services for construction use. The Contractor shall include in his proposal all costs necessary for connecting and extending all necessary utilities. Where connections are made to existing utility services, shut-off or turn-on shall be by Building Maintenance or the designated Physical Plant group only.
- B. Electrical: Contractor shall install a temporary line from an existing power source as directed by the Program Director. Contractor shall provide a temporary fused disconnect switch at the power source and provide ground fault protection for all circuits using portable multi-outlet units designed for construction sites. Upon completion of the project, the Contractor shall remove all temporary installations and restore site to original condition.
- C. Water: Contractor shall install temporary piping and valves necessary to deliver water to construction site. Source of water and pipe route shall be as directed by the Program Director. Provide back flow protection at source of connection satisfactory to Texas Tech's Department of Environmental Health & Safety. Contractor shall arrange with Texas Tech for details of connection to existing source. Upon completion of the project, the Contractor shall remove all temporary installations and restore site to original condition.
- D. Sewers: When necessary provide temporary piping with proper grade to an existing sewer manhole. Connection to a sewer line must be approved by the Program Director. Upon completion of the project, the Contractor shall remove all temporary installations and restore site to original condition.

1.18 PARKING LOT FOR CONSTRUCTION VEHICLES

- A. The Contractor shall maintain parking facilities for construction personnel within the area designated by the construction limits or any other area on campus designated by Texas Tech. Employees of the Contractor, its subcontractors or material suppliers shall park on campus only if space is available.
- B. Requests for construction parking permits may be submitted to Texas Tech. The Contractor/subcontractor will be required to submit vehicle information for verification by Texas Tech. The Contractor/subcontractor will then be issued a Contractor's parking permit from Traffic and Parking.
- C. The Contractor will be permitted a minimum of two (2) parking spaces, adjacent to the construction site. Nothing in this requirement is intended to abrogate the Contractor's regulation of employee parking, service vehicles and construction equipment within the contract limits.
- D. All individuals operating a vehicle on property owned and operated by Texas Tech shall comply with the Traffic and Parking Regulation for Texas Tech.

END OF SECTION

SECTION 01 56 39 TEMPORARY TREE AND PLANT PROTECTION

PART 1. GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.
- B. Related Requirements:
 - 1. Section 01 50 00 "Temporary Facilities and Controls" for temporary site fencing.
 - 2. Section 31 10 00 "Site Clearing" for removing existing trees and shrubs.

1.3 DEFINITIONS

- A. I Caliper: Diameter of a trunk measured by a diameter tape at a height 6 inches above the ground for trees up to and including 4-inch size at this height and as measured at a height of 12 inches above the ground for trees larger than 4-inch size but smaller than 8-inches.
- B. Caliper (DBH): Diameter breast height; diameter of a trunk as measured by a diameter tape at a height 54 inches above the ground line for trees with caliper of 8 inches or greater as measured at a height of 12 inches above the ground.
- C. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.
- D. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and indicated on Drawings or, if not defined on the Drawings, as defined by a circle concentric with each tree with a radius 1.5 times the diameter of the drip line unless otherwise indicated.
- E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site prior to site clearing activities. Allow TTUS FP&C and the component institutions Grounds Maintenance department to review each instance and make adjustments to protection plan as project specific circumstances dictate.
 - 1. Review methods and procedures related to temporary tree and plant protection including, but not limited to, the following:
 - a. The three service firms' personnel and equipment needed to make progress and avoid delays.
 - b. Arborist's responsibilities.
 - c. Quality-control program.
 - d. Coordination of Work and equipment movement with the locations of protection zones.

- e. Trenching by hand or with air spade within protection zones.
- f. Field quality control.
- g. Other items as applicable for the project.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
 - 1. Include plans, elevations, sections, and locations of protection-zone fencing and signage, showing relation of equipment-movement routes and material storage locations with protection zones.
 - 2. Detail fabrication and assembly of protection-zone fencing and signage.
 - 3. Indicate extent of trenching by hand or with air spade within protection zones.
- C. Samples: For each type of the following:
 - 1. Protection-Zone Fencing: Assembled Samples of manufacturer's standard size made from full-size components.
 - 2. Protection-Zone Signage: Full-size Samples of each size and text, ready for installation.
- D. Tree Pruning Schedule: Written schedule detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction. Tree pruning schedule must be approved by the component institution prior to commencement of the Work.
 - 1. Species and size of tree.
 - 2. Location on site plan. Include unique identifier for each.
 - 3. Reason for pruning.
 - 4. Description of pruning to be performed.
 - 5. Description of maintenance following pruning.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For arborist and tree service firm.
- B. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.
- C. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.
- D. Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.
 - 1. Use sufficiently detailed photographs or video recordings.
 - 2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

- E. Quality-control program.

1.7 QUALITY ASSURANCE

- A. Arborist Qualifications: Licensed arborist in jurisdiction where Project is located. Texas Tech University has their own arborists on staff.
- B. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed temporary tree and plant protection work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of the Work.
- C. Quality-Control Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work without damaging trees and plantings. Include dimensioned diagrams for placement of protection zone fencing and signage, the arborists and tree-service firm's responsibilities, instructions given to workers on the use and care of protection zones, and enforcement of requirements for protection zones. Existing trees and plantings not to be removed must be protected, maintained, and cared for throughout the duration of the project.

1.8 FIELD CONDITIONS

- A. The following practices are prohibited within protection zones:
 1. Storage of construction materials, debris, or excavated material.
 2. Moving or parking vehicles or equipment.
 3. Foot traffic.
 4. Erection of sheds or structures.
 5. Impoundment of water.
 6. Excavation or other digging unless otherwise indicated that will disturb the rooting system of the tree or planting material.
 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- B. Do not direct vehicle or equipment exhaust toward protection zones.
- C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

PART 2. PRODUCTS

2.1 MATERIALS

- A. Backfill Soil: Stockpiled native soil from Project site with suitable moisture content and granular texture for placing around tree; free of stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.
 1. Mixture: If warranted by arborist, well-blended mix of two parts native stockpiled soil to one part planting soil or fertilizer combination.
 2. Planting Soil: Planting soil as specified in Section 32 91 13 "Soil Preparation".
- B. Mulch: Free from deleterious materials and suitable as a top dressing for trees and shrubs, consisting of one of the following:

1. Type: Timberland Hardwood Bark Mulch or Timberland No Float Cypress Blend Mulch. Mulch must be non-combustible.
 2. Size Range: 2 - 3 inches maximum.
 3. Color: Natural.
- C. Protection-Zone Fencing: Fencing fixed in position and meeting **one of** the following requirements:
1. Wood Protection-Zone Fencing: Constructed of two 2-by-4-inch horizontal rails, with 4-by-4-inch preservative-treated wood posts spaced not more than 96 inches apart, and lower rail set halfway between top rail and ground.
 - a. Height: Minimum 72 inches.
 - b. Lumber: Comply with requirements in Section 06 10 00 Rough Carpentry.
 2. Plastic Protection-Zone Fencing: Plastic construction fencing constructed of high-density extruded and stretched polyethylene fabric with 2-inch maximum opening in pattern and weighing a minimum of 0.4 lb/ft.; remaining flexible from minus 60 to plus 200 deg F; inert to most chemicals and acids; minimum tensile yield strength of 2000 psi and ultimate tensile strength of 2680 psi; secured with plastic bands or galvanized-steel or stainless-steel wire ties; and supported by tubular or T-shape galvanized-steel posts spaced not more than 96 inches apart.
 - a. Height: 72 inches.
 - b. Color: High-visibility orange, nonfading.
 3. Gates: If required (for protection zones protecting tree groupings), double-swing access gates matching material and appearance of fencing, to allow for maintenance activities within protection zones; leaf width 36 inches minimum.

PART 3. EXECUTION

3.1 EXAMINATION

- A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- B. Prepare written report, endorsed by arborist, listing conditions detrimental to tree and plant protection.

3.2 PREPARATION

- A. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated. Flag each tree trunk 54 inches above the ground.
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.
- C. Tree-Protection Zones: Mulch areas inside tree-protection zones, if required by Owner, and other areas indicated. Do not exceed indicated thickness of mulch.
 1. Apply 2-inch uniform thickness of organic mulch unless otherwise indicated. Do not place mulch within 6 inches of tree trunks.

3.3 PROTECTION ZONES

- A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin in a manner that will prevent people from easily entering protected areas except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.
 - 1. Posts: Set or drive posts into ground one-third the total height of the fence without concrete footings. Where a post is located on existing paving or concrete to remain, provide appropriate means of post support acceptable to Architect.
 - 2. Access Gates: Install as required by Owner; adjust to operate smoothly, easily, and quietly; free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Maintain protection zones free of weeds and trash.
- C. Maintain protection-zone fencing in good condition as acceptable to Texas Tech and remove when construction operations are complete and equipment has been removed from the site.
 - 1. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
 - 2. Temporary access is permitted subject to preapproval in writing by arborist if a root buffer effective against soil compaction is constructed as directed by arborist. Maintain root buffer so long as access is permitted.

3.4 EXCAVATION

- A. General: Excavate at edge of protection zones and for trenches indicated within protection zones according to requirements in Section 31 20 00 Earth Moving unless otherwise indicated.
- B. Trenching within Protection Zones: Where utility trenches are required within protection zones, excavate under or around tree roots by hand or with air spade, or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning. If excavating by hand, use narrow tine spading forks to comb soil and expose roots.
- C. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction and as required for root pruning.
- D. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3.5 ROOT PRUNING

- A. Prune tree roots that are affected by temporary and permanent construction. Prune roots as directed by Texas Tech as follows:
 - 1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning

instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.

2. Cut Ends: Coat cut ends of roots more than 1-1/2 inches in diameter with an emulsified asphalt or other coating formulated for use on damaged plant tissues and that is acceptable to arborist.
 3. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
 4. Cover exposed roots with burlap and water regularly.
 5. Backfill as soon as possible according to requirements in Section 31 20 00 Earth Moving.
- B. Root Pruning at Edge of Protection Zone: Prune tree roots only as directed by Texas Tech. Prune 12 inches outside of the protection zone by cleanly cutting all roots to the depth of the required excavation.
- C. Root Pruning within Protection Zone: Clear and excavate by hand or with air spade to the depth of the required excavation to minimize damage to tree root systems. If excavating by hand, use narrow tine spading forks to comb soil to expose roots. Cleanly cut roots as close to excavation as possible.

3.6 CROWN PRUNING

- A. Prune branches that are affected by temporary and permanent construction. Prune branches as directed by Texas Tech and arborist.
1. Prune to remove only injured, broken, dying, or dead branches unless otherwise indicated. Do not prune for shape unless otherwise indicated.
 2. Do not remove or reduce living branches to compensate for root loss caused by damaging or cutting root system.
 3. Pruning Standards: Prune trees according to ANSI A300 (Part 1).
 - a. Type of Pruning: Cleaning, raising, reducing, and thinning where indicated.
- B. Unless otherwise directed by arborist and acceptable to Texas Tech, do not cut tree leaders.
- C. Cut branches with sharp pruning instruments; do not break or chop.
- D. Do not paint or apply sealants to wounds.
- E. Provide subsequent maintenance pruning during Contract period as recommended by Texas Tech and arborist.

3.7 REGRADING

- A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, maintain existing grades within the protection zone.
- B. Lowering Grade within Protection Zone: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist unless otherwise indicated.
1. Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.
- C. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

- D. Minor Fill within Protection Zone: Where existing grade is 2 inches or less below elevation of finish grade, fill with backfill soil. Place backfill topsoil in a single uncompacted layer and hand grade to required finish elevations.

3.8 FIELD QUALITY CONTROL

- A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.

3.9 REPAIR AND REPLACEMENT

- A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by Architect.
 - 1. Submit details of proposed pruning and repairs.
 - 2. Perform repairs of damaged trunks, branches, and roots within 24 hours according to arborist's written instructions.
 - 3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Architect.
- B. Trees: Remove and replace trees indicated to remain that visibly show to be more than two-thirds dead or in an unhealthy condition or are damaged during construction operations that Texas Tech and the arborist determines are incapable of restoring to normal growth pattern.
 - 1. Small Trees: Provide new trees of the same size and species as those being replaced for each tree that measures 6 inches or smaller in caliper size.
 - 2. Large Trees: Provide one new tree of 8 inches caliper size or larger for each tree being replaced that measures greater than 6 inches in caliper size.
 - a. Species: As directed by Texas Tech or, match species being replaced.
 - 3. Plant and maintain new trees as specified in Section 32 93 00 Plants.
- C. Excess Mulch: Rake mulched area within protection zones, being careful not to injure roots. Rake to loosen and remove mulch that exceeds a 2-inch uniform thickness to remain.
- D. Soil Aeration: Where directed by Texas Tech or arborist, aerate surface soil compacted during construction. Aerate 10 feet beyond drip line and no closer than 36 inches to tree trunk. Drill 2-inch-diameter holes a minimum of 24 inches on center. Backfill holes with an equal mix of augured soil and sand.

3.10 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove excess excavated material, displaced trees, trash, and debris and legally dispose of them off Owner's property

END OF SECTION

SECTION 01 58 13 CONSTRUCTION PROJECT SIGNAGE

PART 1. GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 01 Specification Sections apply to this Section.
- B. Texas Tech Uniform General and Supplementary General Conditions Section 00 72 00.
- C. Section 01 58 13A Construction Project Signage Samples.
- D. Texas Tech Signage OP Section 62.22.

1.2 PROJECT SIGNAGE

- A. Construction Project Signage
 - 1. Contractor shall install a Project Sign as shown in Section 01 58 13A Construction Project Signage Samples at the site. The exact location of each sign shall be coordinated with Texas Tech.
 - 2. Contractor may install one (1) sign bearing the company name and logo indicating the point for delivery for material, supplies, and express deliveries at one gate.
 - 3. Contractor shall submit a drawing of the proposed sign, showing its size, content, and location to Texas Tech for approval prior to fabrication.
- B. Temporary Signage
 - 1. Other than the signs above, interior site way finding signage, and signage required for safety, regulatory, and insurance requirements, no other signage will be installed at the Project site. Signs attached to storage and office trailers must be approved by Texas Tech.
- C. Regulatory Signage

PART 2. PRODUCTS

2.1 SIGNAGE DIMENSIONS AND MATERIALS

- A. Construction project signage shall be constructed of exterior grade $\frac{3}{4}$ " CDX plywood.
- B. The size shall be 96" in length and 48" in height.
- C. The orientation shall be landscape (horizontal).
- D. The signage surface will be mounted to 4"x4" posts temporarily set in the ground.
- E. The bottom edge of the signage shall be at a minimum 48" above grade and installed level.
- F. All exposed surfaces (sign faces, edges, and posts) shall be weather sealed with white exterior latex paint.
- G. All lettering will be black and follow the Futura font at the character heights indicated in Section 01 58 13A and TTUS OP Section 62.22.
- H. The Texas Tech graphic shall be accented with a red accent line below "Texas Tech".

- I. Texas Tech University System Component Institution Graphics
 1. Texas Tech University System and Texas Tech University
 - a. Texas Tech graphics specifications:
 - i. White
 - ii. Black
 - iii. Red – PMS
 - iv. Gray – PMS
 2. Texas Tech University Health Sciences Center
 - a. Texas Tech graphics specifications:
 - i. White
 - ii. Black
 - iii. Red – PMS
 - iv. Gray – PMS
 3. Texas Tech University Health Sciences Center El Paso
 - a. Texas Tech graphics specifications:
 - i. White
 - ii. Black
 - iii. Red – PMS
 - iv. Gray – PMS
 4. Angelo State University
 - a. Texas Tech graphics specifications:
 - i. White
 - ii. Black
 - iii. Red – PMS
 - iv. Gray – PMS
 - b. Angelo State graphics specifications:
 - i. Blue – PMS
 - ii. Gold. – PMS
 5. Midwestern State University
 - a. Texas Tech graphics specifications:
 - i. White
 - ii. Black

- iii. Red – PMS
- iv. Gray – PMS
- b. Midwestern State graphics specifications:
 - i. Maroon – PMS
 - ii. White. - PMS
- J. Refer to Section 01 58 13A - Construction Project Signage Samples document for specifics.

PART 3. EXECUTION

3.1 INSTALLATION OF TEMPORARY PROJECT SIGNAGE

- A. Construction project sign shall be installed immediately after the Contract Award.
- B. Contractor shall ensure that construction project signage is properly set-back from street intersections and pedestrian walkways such that it does not conflict with or impede fields of view necessary for vehicular and pedestrian traffic circulation.
- C. Contractor shall remove construction project signage prior to submission of Contractor's Final Application for Payment. Removal of temporary project signage requiring landscape repairs must comply with Section 00 72 00 Texas Tech Uniform General Conditions and Supplementary General Conditions.

3.2 RESPONSIBILITIES

- A. Contractor shall be responsible for maintaining in good condition all temporary construction project signage.
- B. Contractor shall ensure that the signage is protected from weather and vandalism and the information is legible and complete at all times during construction.
- C. Contractor shall promptly update all outdated sign information as required.

END OF SECTION 01 58 13

SECTION 01 58 13A CONSTRUCTION PROJECT SIGNAGE SAMPLES

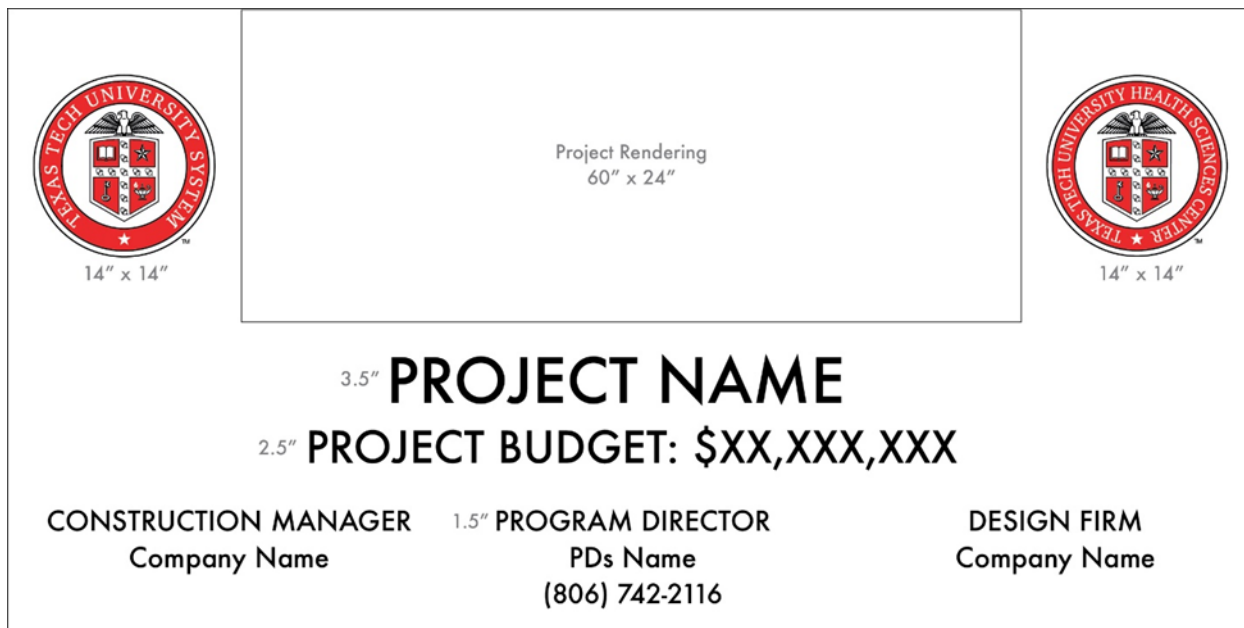
PART 1. GENERAL

1.1 RELATED DOCUMENTS

- A. Section 01 58 13 Construction Project Signage.

1.2 PROJECT SIGNAGE

- A. Texas Tech University Health Sciences Center Sample



1. Sign Specifications:
 - a. 48" x 96" Exterior Grade Plywood CDX
 - b. White background
 - c. Black lettering in Futura font
 - d. Black, Red, and White Texas Tech Graphics.

END OF SECTION

SECTION 01 60 00 PRODUCT REQUIREMENTS

PART 1. 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. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Section 01 25 00 Substitution Request Procedures for requests for substitutions.
 - 2. Section 01 42 00 Reference Standards for applicable industry standards for products specified.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved by Texas Tech and Architect through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.
- C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications. Submit a comparable product request, if applicable.

1.4 ACTION SUBMITTALS

- A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Approval of Submittal: As specified in Section 01 33 00 Submittals.
 - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 01 33 00 Submittals. Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If the Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
 - 1. Each contractor is responsible for providing products and construction methods compatible with specified products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Texas Tech will determine which products shall be used.
- B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.
 - 1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
 - 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.
 - 3. See individual identification sections in Divisions 21, 22, 23, and 26 for additional identification requirements.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
 - 1. Store products to allow for inspection and measurement of quantity or counting of units.
 - 2. Store materials in a manner that will not endanger Project structure.
 - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 4. Protect foam plastic from exposure to sunlight, except to the extent necessary for period of installation and concealment.
 - 5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 6. Protect stored products from damage and liquids from freezing.
 - 7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 - 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 - 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 2. Specified Form: When specified forms are included with the Specifications, prepare a written

document using indicated form properly executed.

3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 01 77 00 Closeout Requirements.

PART 2. PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 1. Materials and products must be new and must be conformance with approved submittals. Texas Tech reserves the right to reject and refuse the use of materials and products that are not in conformance with the approved submittals.
 2. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 3. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 4. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
 5. Where products are accompanied by the term "as selected," Texas Tech and Architect will make selection.
 6. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 - a. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product. Submit additional documentation required by Texas Tech and Architect in order to establish equivalency of proposed products. Evaluation of "or equal" product status is by Texas Tech and the Architect, whose determinations are final.
- B. Product Selection Procedures:
 1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for the Contractor's convenience will not be considered.
 - a. Sole product may be indicated by the phrase: "Subject to compliance with requirements, provide the following: ..."
 2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for the Contractor's convenience will not be considered.
 - a. Sole manufacturer/source may be indicated by the phrase: "Subject to compliance with requirements, provide products by the following: ..."
 3. Limited List of Products: Where Specifications include a list of names of both manufacturers

and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for the Contractor's convenience will not be considered.

- a. Limited list of products may be indicated by the phrase: "Subject to compliance with requirements, provide one of the following: ..."
4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, which complies with requirements.
 - a. Non-limited list of products is indicated by the phrase: "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following: ..."
5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated by Texas Tech.
 - a. Limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, provide products by one of the following: ..."
6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, which complies with requirements.
 - a. Non-limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following: ..."
7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Texas Tech and Architect's decision will be final on whether a proposed product matches.
 1. If no product available within the specified category matches and complies with other specified requirements, comply with requirements in Section 01 25 00 Substitution Request Procedures for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from a manufacturer's full range" or similar phrase, select a product that complies with requirements. Architects will select color, gloss, pattern, density, or texture from manufacturer's full product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration of Comparable Products: Texas Tech and Architect will consider the Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Texas Tech and Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that proposed product presents a delay to the schedule.
 2. Evidence that proposed product is out of stock, has been discontinued, or has been delayed due to manufacturing or fabrication problems.
 3. Evidence that the proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
 4. Evidence that proposed product provides specified warranty.
 5. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 6. Samples, if requested.
- B. Submittal Requirements: Approval by Texas Tech and the Architect of Contractor's request for use of comparable product does not relieve the contractor of conformance with the comprehensive requirements of the specifications. Comply with specified submittal requirements.

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 77 00 CLOSE OUT REQUIREMENTS

PART 1. 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.
- B. Article 12 and 13 of the Uniform General and Supplementary Conditions.
- C. Certificate of Substantial Completion.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final Completion procedures.
 - 3. List of incomplete items from Final Punchlist
 - 4. Submittal of Project Warranties.
- B. Related Requirements:
 - 1. Section 01 29 00 "Payment Procedures" for application for payment at Substantial Completion and Final Payment application submission procedures.
 - 2. Section 01 78 23 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.
 - 3. Section 01 78 39 "Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 4. Section 01 79 00 "Demonstration and Training" for requirements to train the Owner's maintenance personnel to adjust, operate, and maintain products, equipment, and systems.

1.3 ACTION SUBMITTALS

- A. Product Data
- B. Operations and Maintenance manuals for each specified section requiring operational maintenance of materials, equipment, and building systems.
- C. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- D. Certified List of Incomplete Items: Final submittal at final completion.

1.4 CLOSE OUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.
- B. Submit manufacturer's cleaning procedures and acceptable cleaning agents/products for each material installed.
- C. Submit unacceptable procedures and list of chemicals or cleaning agents that should not be used on installed materials and products.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: The Construction Manager shall prepare and submit a list of all incomplete items to be completed and corrected (Contractor's punch list) prior to the request for final punch. The list is to indicate the value of each incomplete item and the reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of ten (10) days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
 - 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Texas Tech. Label with manufacturer's name and model number.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Owner's signature for receipt of submittals.
 - 5. Submit all testing, adjusting, and balancing records performed by subcontractors validating the quality of the Work as it was installed.
 - 6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of ten (10) days prior to requesting inspection for determining the date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Make final changeover of permanent locks and deliver keys to Owner's Lock shop. Advise Owner's personnel of changeover in security provisions.

3. Complete startup and testing of systems and equipment.
 4. Perform preventive maintenance on equipment used prior to Substantial Completion, including the replacement of filter media with new filters in all building systems.
 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 01 79 00 "Demonstration and Training".
 6. Advise Owner of changeover in utility services.
 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 9. Complete final cleaning requirements.
 10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.
 11. Remove project sign.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of ten (10) days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Owner of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Construction Manager of items, either on Construction Manager's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment according to Section 01 29 00 "Payment Procedures."
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Submit pest-control final inspection report.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to the date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify the Contractor of unfulfilled requirements. The Architect will prepare a final Certificate for Payment after inspection

or will notify the Contractor of construction that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Construction Manager that are outside the limits of construction.
 1. Organize list of spaces in sequential order.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Construction Manager and subcontractor.
 - e. Page number.
 4. Submit list of incomplete items in the following format:
 - a. MS Excel electronic file. Architect will return annotated file.
 - b. PDF electronic file. Architect will return annotated file.
 - c. Web-based project software upload. Ensure list is uploaded into Trimble Unity Construct (formerly e-Builder) in appropriate subfolder.

1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Owner for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Partial Occupancy: Submit properly executed warranties within fifteen (15) days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
- D. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
 1. Submit by uploading to Texas Tech's web-based project software site, Trimble Unity Construct (formerly e-Builder).

PART 2. PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by the manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3. EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are not planted, mulched, or paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to buildings.
 - f. Clean exposed exterior and interior hard-surface finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
 - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - k. Remove labels that are not permanent.
 - l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting

from water exposure.

- n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
 - i. Clean HVAC system in compliance with [NADCA ACR.] [Section 230130.52 "Existing HVAC Air-Distribution System Cleaning."] Provide written report on completion of cleaning.
 - p. Clean luminaires, lamps, globes, and reflectors to function with full efficiency.
 - q. Leave Project clean and ready for occupancy.
- C. Pest Control: Comply with pest control requirements in Section 015000 "Temporary Facilities and Controls." Prepare written report.
- D. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 50 00 "Temporary Facilities and Controls."

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to new condition.
 - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
 - 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
 - 4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION

SECTION 01 78 23 OPERATION AND MAINTENANCE DATA

PART 1. GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Texas Tech Uniform General and Supplementary General Conditions Section 00 72 00.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory manuals,
 - 2. Emergency manuals,
 - 3. Systems and equipment operation manuals,
 - 4. Systems and equipment maintenance manuals, and
 - 5. Product maintenance manuals.
- B. Related Requirements:
 - 1. Section 01 33 00 Submittals -for submitting copies of submittals for operation and maintenance manuals.
 - 2. Section 01 91 13 General Commissioning Requirements - for verification and compilation of data into operation and maintenance manuals.

1.3 DEFINITIONS

- A. Close Out Documents: Refer to Section 00 72 00 Texas Tech Uniform General and Supplementary General Conditions, Article 1. Definitions.
- B. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- C. Subsystem: A portion of a system with characteristics similar to a system

1.4 PROJECT CLOSEOUT SUBMITTALS

- A. Submit operation and maintenance (O&M) manuals for all specified building systems. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Design Professional will comment on whether content of operation and maintenance submittals are acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operation and maintenance manuals in the following format:
 - 1. Submit by uploading into Trimble Unity Construct (formerly e-Builder) to the location indicated by TTUS FP&C.

- C. Draft Manual Submittal: Submit draft copy of each manual at least thirty (30) days before commencing demonstration and training. Design Professional will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least fifteen (15) days before commencing demonstration and training. Design Professional will return copy with comments.
 - 1. Correct or revise each manual to comply with Design Professional's comments. Submit copies of each corrected manual before Final Completion
- E. Comply with Section 01 77 00 Closeout Requirements regarding schedule for submitting operation and maintenance documentation.

1.5 GENERAL COORDINATION PROCEDURES

- A. Electronic Files: Submit electronic files in the form of multiple-page composite electronic true PDF (i.e., searchable) files from manufacturer's literature for each operational system and as required under the specifications.
 - 1. Electronic Files: Use electronic files prepared by the manufacturer.
 - 2. File Names and Bookmarks:
 - a. Bookmark individual documents based on CSI specification number and name.
 - b. Name document files to correspond to CSI specification number and name.
 - c. Group documents for each system and subsystem under CSI Division as specified in Project Manual and into individual composite bookmarked files.
 - d. Create composite manual so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree.
 - e. Configure electronic manual to display bookmark panel on opening file

1.6 COORDINATION DRAWINGS

- A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 - 1. Title page,
 - 2. Table of contents, and
 - 3. Manual contents.
- B. Title Page: Include the following information:
 - 1. Subject matter included in manual,
 - 2. Name and address of Project,
 - 3. Name and address of Owner,
 - 4. Date of submittal,
 - 5. Name and contact information for Contractor,
 - 6. Name and contact information for Construction Manager,

7. Name and contact information for Architect,
 8. Name and contact information for Commissioning Authority,
 9. Names and contact information for major consultants to Architect that designed the systems contained in the manuals, and
 10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual:
1. Identify by product name,
 2. Indexed to the content of the volume, and
 3. Cross-referenced to Specification Section number in Project Manual.
- D. Manual Contents:
1. Organize electronic files to manageable size.
 2. Arrange contents alphabetically by system, subsystem, and equipment.
 3. If possible, assemble instructions for subsystems, equipment, and components of one system into a single compiled true (searchable) PDF file.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, Preparation of Operating and Maintenance Documentation for Building Systems.

1.7 FORMAT FOR EQUIPMENT OPERATION MANUALS

- A. Equipment Operation Manual: Assemble a complete set of data indicating the operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.
1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 2. Prepare a separate manual for each system and subsystem in the form of an instructional manual for use by Owner's operating personnel.
- B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions,
 - a. Use designations for systems and equipment indicated in Contract Documents.
 2. Performance and design criteria if Contractor has delegated design responsibility,
 3. Operating standards,
 4. Operating procedures,
 5. Operating logs,
 6. Wiring diagrams,
 7. Control diagrams,

8. Piped system diagrams,
 9. Precautions against improper use, and
 10. License requirements, including inspection and renewal dates.
- C. Descriptions: Include the following:
1. Product name and model number,
 - a. Use designations for products indicated in Contract Documents.
 2. Manufacturer's name,
 3. Equipment identification with serial number of each component,
 4. Equipment function,
 5. Operating characteristics,
 6. Limiting conditions,
 7. Performance curves
 8. Engineering data and tests, and
 9. Complete nomenclature and number of replacement parts.
- D. Operating Procedures: Include the following, as applicable:
1. Startup procedures,
 2. Equipment or system break-in procedures,
 3. Routine and normal operating instructions,
 4. Regulation and control procedures,
 5. Instructions on stopping,
 6. Normal shutdown instructions,
 7. Seasonal and weekend operating instructions,
 8. Required sequences for electric or electronic systems, and
 9. Special operating instructions and procedures.
- E. Equipment Controls: Describe the sequence of operation and diagram controls as installed.
- F. Piped Systems: Diagram piping as installed and identify color coding where required for identification.

1.8 REQUIREMENTS FOR EQUIPMENT MAINTENANCE MANUALS

- A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system.
1. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.
 2. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.

3. Prepare a separate manual for each system and subsystem in the form of an instructional manual for use by Owner's operating personnel.
- B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds as described below.
- C. Source Information:
1. List each system, subsystem, and piece of equipment included in manual, identified by product name, and arranged to match manual's table of contents.
 2. For each product, list name, address, and telephone number of installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- D. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:
1. Standard maintenance instructions and bulletins include only sheets pertinent to product or component installed.
 2. Mark each sheet to identify each product or component incorporated into the Work.
 - a. If data includes more than one (1) item in a tabular format, identify each item using appropriate references from Contract Documents.
 - b. Identify data applicable to the Work and delete references to information not applicable.
 - c. Prepare supplementary text if manufacturers' standard printed data is not available and location of the information necessary for proper operation and maintenance of equipment or systems.
 3. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 4. Identification and nomenclature of parts and components.
 5. List of items recommended to be stocked as spare parts.
- E. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions,
 2. Troubleshooting guide,
 3. Precautions against improper maintenance,
 4. Disassembly, component removal, repair, and replacement, and reassembly instructions,
 5. Aligning, adjusting, and checking instructions, and
 6. Demonstration and training video recording, if available.
- F. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly,

semiannual, and annual frequencies.

2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- G. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- H. Maintenance Service Contracts: If required by the specifications, include copies of maintenance agreements with the name and telephone number of service agent.
- I. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 1. Include procedures to follow and required notifications for warranty claims.
- J. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
 1. Do not use original Project record documents as part of maintenance manuals.

1.9 MATERIAL MAINTENANCE AND CLEANING MANUALS

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- C. Source Information: List each product included in manual, identified by product name, and arranged to match manual's table of contents. For each product, list name, address, and telephone number of installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- D. Product Information: Include the following, as applicable:
 1. Product name and model number,
 2. Manufacturer's name,
 3. Color, pattern, and texture,
 4. Material and chemical composition, and
 5. Reordering information for specially manufactured products.
- E. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 1. Inspection procedures,
 2. Types of cleaning agents to be used and methods of cleaning,
 3. List of cleaning agents and methods of cleaning detrimental to product,
 4. Schedule for routine cleaning and maintenance, and
 5. Repair instructions.

- F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- G. Warranties: Include copies of warranties and lists of circumstances and conditions that would affect validity of warranties.
 - 1. Include procedures to follow and required notifications for warranty claims.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

SECTION 01 78 39 PROJECT RECORD DOCUMENTS

PART 1. GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Texas Tech Uniform General and Supplementary General Conditions Section 00 72 00 Article 1.
- C. Texas Tech Uniform General and Supplementary General Conditions Section 00 72 00 Article 6.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
- B. Related Requirements:
 - 1. Section 01 77 00 Close Out Requirements - for general close out procedures.
 - 2. Section 01 78 23 Operation and Maintenance Data - for operation and maintenance manual requirements.

1.3 PROJECT CLOSE OUT SUBMITTALS

- A. Project Record Drawings (As-Built): Comply with the following:
 - 1. Submit one (1) set(s) of Project specific Record Drawings indicating all conditions deviating from Contract Documents.
 - 2. Number of Copies: Submit copies of Record Drawings As-Built as follows:
 - a. Initial Submittal:
 - i. Submit PDF electronic files of scanned Record Document As-Built immediately upon completion of each phase of the completed Work.
 - 1) Provide a clear date of submission on As-Built documents.
 - 2) Do not wait until the end of the Project to submit.
 - b. Final Submittal:
 - i. Submit PDF electronic file of scanned Record Document As-Built for entire installation, inclusive of all revisions and adjustments made through the construction process, immediately upon completion of the Work in its entirety.
 - 1) Provide a clear date of submission on As-Built documents.
- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including Addenda and Contract modifications.
- C. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-

keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.

1.4 RECORD DRAWINGS

- A. Record Prints: Maintain one (1) set of marked-up paper or PDF copies of Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show actual installation where installation varies from that shown originally. Require individual or entity who obtained Record Data to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding photographic documentation.
 - 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings,
 - b. Revisions to details shown on Drawings,
 - c. Depths of foundations or elements deviating from design intent,
 - d. Locations and depths of underground utilities,
 - e. Revisions to routing of piping and conduits,
 - f. Revisions to electrical circuitry,
 - g. Actual equipment locations,
 - h. Duct size and routing,
 - i. Locations of concealed internal utilities,
 - j. Changes made by Addenda, ASI's, RFI's, Construction Change Requests, Change Order or Construction Change Directive,
 - k. Changes made following Design Professional's written orders,
 - l. Details not on the original Contract Drawings,
 - m. Field records for variable and concealed conditions, and
 - n. Record information on the Work that is shown only schematically.
 - 3. Mark Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 - 4. Mark record set changes in red in PDF.
 - a. Use other colors to distinguish between changes for different categories of the Work at same location.

5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record files with Design Professional. The Design Professional, when authorized, is to prepare a full set of corrected digital data files of Contract Drawings, as follows:
1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.
 2. Format: .DWG, .RVT digital files for Microsoft Windows operating system.
 3. Format: Annotated PDF electronic files.
 4. Incorporate changes and additional information previously marked on Project Record Document (As-Builts) as provided by Contractor. Delete, redraw, and add details and notations where applicable.
 5. Refer instances of uncertainty to Contractor for resolution.
 6. Design Professional will furnish Texas Tech with one (1) set of digital data files of Contract Drawings for use in recording information.
 - a. Refer to Section 01 31 00 Project Management and Coordination for requirements related to use of Design Professional's digital data files.
 - b. Design Professional will provide data file layer information. Record markups in separate layers.
- C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING (As-Builts)" in a prominent location.
1. Record Prints: Organize electronic record files into manageable sets. Include identification on cover sheets.
 2. Format: Annotated PDF electronic file with comment function enabled.
 3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of Contract Drawings.
 - a. Name each file with the sheet identification.
 - b. Include identification in each digital data file.
 4. Identification: As follows:
 - a. Project name,
 - b. Date,
 - c. Designation "PROJECT RECORD DRAWINGS (As-Builts),
 - d. Name of Design Professional, and
 - e. Name of Contractor.

1.5 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, Addenda, and Contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Record the name of manufacturer, supplier, installer, and other information necessary to provide a record of selections made.
 - 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
 - 5. Note related Addenda, ASI's, RFI's, Construction Change Requests, Change Orders, final Specifications, and record Drawings where applicable.
- B. Format: Submit record Specifications as annotated PDF electronic file.

1.6 RECORD PRODUCT DATA

- A. Recording: Maintain each submittal during the construction period for Project Record Document purposes.
 - 1. Post changes and revisions to Project Record Documents as they occur.
 - 2. Do not wait until the end of Project to record.
- B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to the Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Addenda, ASI's, RFI's, Construction Change Requests, Change Orders, final Specifications, and Record Drawings where applicable.
- C. Format: Submit Record Product Data as annotated PDF electronic file.
 - 1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of Record Product Data.

1.7 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file or scanned PDF electronic file(s) of marked-up miscellaneous record submittals.
 - 1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.8 MAINTENANCE OF PROJECT RECORD DOCUMENTS (AS-BUILTS)

- A. Maintenance of Record Documents: Store Record Documents in the field office apart from Contract Documents used for construction.
 - 1. Do not use Project Record Documents for construction purposes.
 - 2. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss.
 - 3. Provide access to Project Record Documents for Design Professional's reference during normal working hours.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION 01 78 39

SECTION 01 79 00 DEMONSTRATION AND TRAINING

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. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Instruction in operation and maintenance of systems, subsystems, and equipment.
 - 2. Demonstration and training video recordings.

1.3 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.
- B. Qualification Data: For specialty technician with the relevant expertise that is authorized by the manufacturer to provide proficient training on the use, cleaning, and maintenance of materials, products, and building systems.
- C. Attendance Record: For each training module, submit a list of participants and length of instruction time.
- D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

1.4 CLOSEOUT SUBMITTALS

- A. Demonstration and Training Video Recordings and Documentation: Submit (upload in Trimble Unity Construct (formerly e-Builder)) electronic video files and PDFs within seven (7) days of end of each training module.
 - 1. Identification: On each copy, provide an applied label with the following information:
 - a. Name of Project.
 - b. Name and address of videographer.
 - c. Name of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.

- f. Date of video recording.
- 2. Transcript: Prepared in PDF electronic format. Include a cover sheet with the same label information as the corresponding video recording and a table of contents with links to corresponding training components. Include name of Project and date of video recording on each page.
- 3. At completion of training, submit complete training manual(s) for Owner's use prepared in PDF file format required for operation and maintenance manuals specified in Section 01 78 23 "Operation and Maintenance Data."

1.5 QUALITY ASSURANCE

- A. Facilitator Qualifications: An employee of the manufacturer or installer experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Specialty Technician Qualifications: A factory-authorized service representative, complying with requirements in Section 01 40 00 "Quality Requirements," experienced in operation and maintenance procedures and training of the material or building system.
- C. Videographer Qualifications: A videographer who is experienced photographing and videoing demonstration and training events similar to those required.
- D. Pre-instruction Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00 "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
 - 1. Inspect and discuss locations and other facilities required for instruction.
 - 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
 - 3. Review required content of demonstration and training.
 - 4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.6 COORDINATION

- A. Coordinate demonstration and training instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by the Design Professional.

1.7 INSTRUCTION PROGRAM

- A. Program Structure: Develop a demonstration and training instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:

1. Operational Requirements and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance criteria.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Systems and equipment operation manuals.
 - c. Systems and equipment maintenance manuals.
 - d. Product maintenance manuals.
 - e. Project Record Documents.
 - f. Identification systems.
 - g. Warranties and bonds.
 - h. Maintenance service agreements and similar continuing commitments.
3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.
 - f. Special operating instructions and procedures.
4. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.

- d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - l. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
5. Adjustments: Include the following:
- a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
6. Troubleshooting: Include the following:
- a. Diagnostic instructions.
 - b. Test and inspection procedures.
7. Maintenance: Include the following:
- a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning.
 - e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
8. Repairs: Include the following:
- a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

1.8 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 01 78 23 "Operation and Maintenance Data."
- B. Set up instructional equipment at the instructional location.

1.9 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified specialty technicians to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment.
 - 1. Owner will furnish an instructor to describe Owner's operational philosophy.
 - 2. Owner will furnish Contractor with names and positions of participants.
- C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
 - 1. Schedule training with Owner through Construction Manager, with at least fourteen days' advance notice.
- D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- E. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

1.10 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
 - 1. At beginning of each training module, record each chart containing learning objective and lesson outline.
- B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full HD mode with vibration reduction technology.
 - 1. Submit video recordings by uploading to web-based Project software site, Trimble Unity Construct (formerly e-Builder).
 - 2. File Hierarchy: Organize folder structure and file locations according to Project Manual table of contents. Provide complete screen-based menu.
 - 3. File Names: Utilize file names based on name of equipment generally described in video segment, as identified in Project specifications.
 - 4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on

the equipment demonstration and training recording that describes the following for each Contractor involved on the Project, arranged according to Project Manual table of contents:

- a. Name of Contractor/Installer.
 - b. Business address.
 - c. Business phone number.
 - d. Point of contact.
 - e. Email address.
- C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.
- 1. Film training session(s) in segments not to exceed 15 minutes.
 - a. Produce segments to present a single significant piece of equipment per segment.
 - b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.
 - c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming, and pause the training session. Begin training session again upon commencement of new filming segment.
- D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.
- 1. Furnish additional portable lighting as required.
- E. Transcript: Provide a transcript of the narration. Display images and running time captured from videotape opposite the corresponding narration segment.
- F. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

PART 2. PRODUCTS

PART 3. EXECUTION

END OF SECTION

SECTION 01 91 13 PROJECT COMMISSIONING REQUIREMENTS

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.
- B. Third-Party Commissioning Agent Commissioning Plan to be provided for reference.

1.2 SUMMARY

- A. Section Includes:
 - 1. General requirements for coordinating and scheduling commissioning activities.
 - 2. Commissioning meetings.
 - 3. Commissioning reports.
 - 4. Use of commissioning process test equipment, instrumentation, and tools.
 - 5. Construction checklists, including, but not limited to, installation checks, startup, performance tests, and performance test demonstration.
 - 6. Commissioning tests and commissioning test demonstrations.
 - 7. Adjusting, verifying, and documenting identified systems and assemblies.
- B. Related Requirements:
 - 1. Section 01 33 00 "Submittals" for submittal procedure requirements for commissioning process.
 - 2. Section 01 77 00 "Close Out Procedures" for Certificate of Construction-Phase Commissioning Process Completion submittal requirements.
 - 3. Section 01 78 23 "Operation and Maintenance Data" for preliminary operation and maintenance data submittal requirements.
 - 4. Section 22 08 00 "Commissioning of Plumbing" for technical commissioning requirements for plumbing.
 - 5. Section 23 08 00 "Commissioning of HVAC" for technical commissioning requirements for HVAC.
 - 6. Section 26 08 00 "Commissioning of Electrical Systems" for technical commissioning requirements for electrical systems.
 - 7. Section 27 08 00 "Commissioning of Communications" for technical commissioning requirements for communications systems.
 - 8. Section 28 08 00 "Commissioning of Electronic Safety and Security" for technical commissioning requirements for electronic safety and security systems.

1.3 DEFINITIONS

- A. **Acceptance Criteria:** Threshold of acceptable work quality or performance specified for a commissioning activity, including, but not limited to, construction checklists, performance tests, performance test demonstrations, commissioning tests, and commissioning test demonstrations.
- B. **Basis-of-Design Document:** A document prepared by the Design Professional describing the design intent for the project's designed building systems inclusive of concepts, calculations, decisions, and product selections, in compliance and conformance with applicable regulatory requirements, building codes, Texas Tech's Design and Construction Standards, and relevant guidelines.
- C. **Commissioning Agent:** An entity engaged by Texas Tech to evaluate building systems design intent for the project and execute full commissioning, testing, adjusting, and balancing of the building systems in conformance with the design intent and Contract Documents.
- D. **Commissioning Plan:** A document, prepared by the Owner's Commissioning Agent, that outlines the organization, schedule, allocation of resources, testing procedures, and documentation of the project's commissioning requirements.
- E. **Commissioning:** A quality-focused process for verifying and documenting that the facility and all of its systems and assemblies are planned, designed, installed, and tested to comply with Texas Tech project specific requirements. The requirements specified here are limited to the construction phase commissioning activities. The scope of the commissioning process is defined in the Commissioning Plan.
- F. **Construction Phase Commissioning Process Completion:** The stage of completion and acceptance of commissioning process when resolution of deficient conditions and issues discovered during commissioning process and retesting until acceptable results are obtained has been accomplished. Owner will establish in writing the date construction-phase commissioning-process completion is achieved. See Section 01 77 00 "Closeout Procedures" for Certificate of Construction Phase Commissioning Process Completion submittal requirements.
 - 1. Commissioning process is complete when the Work specified of this Section and related Sections has been completed and accepted, including, but not limited to, the following:
 - a. Completion of tests and acceptance of test results.
 - b. Resolution of issues, as verified by retests performed and documented with acceptance of retest results.
 - c. Comply with requirements in Section 01 79 00 "Demonstration and Training."
 - d. Completion and acceptance of submittals and reports.
- G. **Owner's Project Requirements:** A document that details the functional requirements of a project and the expectations of how it will be used and operated, including Project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information. This document is prepared either by the Owner or for the Owner by the Design Professional or Owner's Commissioning Agent.
- H. **Owner's Witness:** Owner's designated field construction observer(s), Commissioning Agent, Owner's Program Director, or Design Professional authorized to authenticate test demonstration data and to sign completed test data forms.
- I. **Construction Manger Agent:** Owner's third-party project administrator. TTUS FP&C project may or may not include a Construction Manager Agent.
- J. **"Systems," "Assemblies," "Subsystems," "Equipment," and "Components":** Where these terms are used together or separately, they shall mean "as-built" systems, assemblies, subsystems, equipment,

and components.

- K. Test: Performance tests, performance test demonstrations, commissioning tests, and commissioning test demonstrations.
- L. Sampling Procedures and Tables for Inspection by Attributes: As defined in ASQ Z1.4.

1.4 COMMISSIONING TEAM

- A. Members Appointed by Construction Manager:
 - 1. Commissioning Coordinator: A person or entity employed by the Construction Manager to manage, schedule, and coordinate the commissioning process.
 - 2. Project superintendent and other employees that Construction Manager may deem appropriate for a particular portion of the commissioning process.
 - 3. Subcontractors, installers, suppliers, and specialists that Construction Manager may deem appropriate for a particular portion of the commissioning process.
 - 4. Appointed team members shall have the authority to act on behalf of the entity they represent.
- B. Members Appointed by Owner:
 - 1. Commissioning Agent, plus consultants that Commissioning Agent may deem appropriate for a particular portion of the commissioning process.
 - 2. Owner representative(s), field construction observers, Construction Manager Agent, facility operations and maintenance personnel, plus other employees, separate contractors, and consultants that Owner may deem appropriate for a particular portion of the commissioning process.
 - 3. Design Professional, plus employees and consultants that Design Professional may deem appropriate for a particular portion of the commissioning process.

1.5 INFORMATIONAL SUBMITTALS

- A. Comply with requirements in Section 01 33 00 "Submittal Procedures" for submittal procedure general requirements for commissioning process.
- B. Commissioning Plan Information:
 - 1. List of Construction Manager appointed commissioning team members to include specific personnel and subcontractors performing the various commissioning requirements.
 - 2. Schedule of commissioning activities, integrated with the Construction Schedule. Comply with requirements in Section 01 32 00 "Construction Progress Documentation" for the Construction Schedule general requirements for commissioning process.
 - 3. Construction Manager personnel and subcontractors participating in each test.
 - 4. List of instrumentation required for each test to include identification of parties that will provide instrumentation for each test.
- C. Commissioning schedule.
- D. Six-week look-ahead schedules.
- E. Commissioning Coordinator Letter of Authority:

1. Within ten (10) days after approval of Commissioning Coordinator qualifications, submit a letter of authority for the Commissioning Coordinator, signed by a principal of Construction Manager's firm. Letter shall authorize Commissioning Coordinator to do the following:
 - a. Make inspections required for commissioning process.
 - b. Coordinate, schedule, and manage commissioning process of Construction Manager, subcontractors, and suppliers.
 - c. Obtain documentation required for commissioning process from Construction Manager, subcontractors, and suppliers.
 - d. Report issues, delayed resolution of issues, schedule conflicts, and lack of cooperation or expertise on the part of members of the commissioning team.
- F. Commissioning Coordinator Qualification Data: For entity coordinating Construction Manager's commissioning activities to demonstrate their capabilities and experience.
 1. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of seven (7) previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- G. List test instrumentation, equipment, and monitoring devices. Include the following information:
 1. Make, model, serial number, and application for each instrument, equipment, and monitoring device.
 2. Brief description of intended use.
 3. Calibration record showing the following:
 - a. Calibration agency, including name and contact information.
 - b. Last date of calibration.
 - c. Range of values for which calibration is valid.
 - d. Certification of accuracy.
 - e. Certification for calibration equipment traceable to NIST.
 - f. Due date of the next calibration.
- H. Test Reports:
 1. Pre-Startup Report: Prior to startup of equipment or a system, submit signed, completed construction checklists.
 2. Test Data Reports: At the end of each day in which tests are conducted, submit test data for tests performed.
 3. Commissioning Issue Reports: Daily, at the end of each day in which tests are conducted, submit commissioning issue reports for tests for which acceptable results were not achieved.
 4. Weekly Progress Report: Weekly, at the end of each week in which tests are conducted, submit a progress report.
 5. Data Trend Logs: Submit data trend logs at the end of the trend log period.

- I. System Alarm Logs: Daily, at the start of days following a day in which tests were performed, submit printout of log of alarms that occurred since the last log was printed.

- 1. Construction Checklists:
 - a. Material checks.
 - b. Installation checks.
 - c. Startup procedures, where required.

1.6 CLOSE OUT SUBMITTALS

A. Commissioning Report:

- 1. At Construction Phase Commissioning Completion, include the following:
 - a. Pre-startup reports.
 - b. Approved test procedures.
 - c. Test data forms completed and signed.
 - d. Progress reports.
 - e. Commissioning issue report log.
 - f. Commissioning issue reports showing resolution of issues.
 - g. Correspondence or other documents related to resolution of issues.
 - h. Other reports required by commissioning process.
 - i. List unresolved issues and reasons they remain unresolved and should be exempted from the requirements for Construction Phase Commissioning Completion.
 - j. Report shall include commissioning work of Construction Manager.

B. Request for Certificate of Construction Phase Commissioning Process Completion.

C. Operation and Maintenance Data: For proprietary test equipment, instrumentation, and tools to include in operation and maintenance manuals.

1.7 QUALITY ASSURANCE

A. Commissioning Coordinator Qualifications:

- 1. Documented experience commissioning systems of similar complexity to those contained in these documents on at least five (5) projects of similar scope and complexity.

PART 2. PRODUCTS

2.1 TEST EQUIPMENT, INSTRUMENTATION, AND TOOLS

- A. Test equipment and instrumentation required to perform commissioning process shall comply with the following criteria:
 - 1. Be manufactured for the purpose of testing and measuring tests for which they are being used and have an accuracy to test and measure system performance within the tolerances required to determine acceptable performance.

2. Calibrated and certified.
 - a. Calibration performed and documented by a qualified calibration agency according to national standards applicable to the tools and instrumentation being calibrated. Calibration shall be current according to national standards or within test equipment and instrumentation manufacturer's recommended intervals, whichever is more frequent, but not less than within six months of initial use on Project. Calibration tags shall be permanently affixed.
 - b. Repair and recalibrate test equipment and instrumentation if dismantled, dropped, or damaged since last calibrated.
3. Maintain test equipment and instrumentation.
4. Use test equipment and instrumentation only for testing or monitoring Work for which they are designed.

2.2 PROPRIETARY TEST EQUIPMENT, INSTRUMENTATION, AND TOOLS

- A. Proprietary test equipment, instrumentation, and tools are those manufactured or prescribed by tested equipment manufacturer and required for work on its equipment as a condition of equipment warranty, or as otherwise required to service, repair, adjust, calibrate, or perform work on its equipment.
 1. Identify proprietary test equipment, instrumentation, and tools required in the test equipment identification list submittal.
 2. Proprietary test equipment, instrumentation, and tools shall become the property of Owner at Substantial Completion.

2.3 REPORT FORMAT AND ORGANIZATION

- A. General Format and Organization:
 1. Electronic Data: Portable document format (PDF); a single file with outline-organized bookmarks for major and minor tabs and tab contents itemized for specific reports.
 2. Upload into Texas Tech's web-based software platform, Trimble Unity Construct (formerly e-Builder), as directed by Owner.
- B. Commissioning Report:
 1. Include a table of contents and an index to each test.
 2. Include major tabs for each specification section.
 3. Include minor tabs for each test.
 4. Within each minor tab, include the following:
 - a. Test specification.
 - b. Pre-startup reports.
 - c. Approved test procedures.
 - d. Test data forms completed and signed.
 - e. Corrective Action Reports (CAR) showing resolution of issues, and documentation related to resolution of issues pertaining to inspections and functional and operational

testing. Group data forms and CAR logs showing resolution of issues, and documentation related to resolution of issues for each test repetition together within the minor tab, in reverse chronological order (most recent on top).

PART 3. EXECUTION

3.1 PREPARATION

- A. Review preliminary construction checklists and preliminary test procedures and data forms.

3.2 CONSTRUCTION CHECKLISTS

- A. Construction checklists cannot modify or conflict with the Contract Documents.
- B. Create construction checklists based on actual systems and equipment to be included in Project.
- C. Material Checks: Compare specified characteristics and approved submittals with materials as received. Include factory tests and other evaluations, adjustments, and tests performed prior to shipment if applicable.
 - 1. Service connection requirements, including configuration, size, location, and other pertinent characteristics.
 - 2. Included optional features.
 - 3. Delivery Receipt Check: Construction Manager to inspect and record physical condition of materials and equipment on delivery to Project site, including agreement with approved submittals, cleanliness, and lack of damage.
 - 4. Installation Checks:
 - a. Location according to Drawings and approved Shop Drawings.
 - b. Configuration.
 - c. Compliance with manufacturers' written installation instructions.
 - d. Attachment to structure.
 - e. Access clearance to allow for maintenance, service, repair, removal, and replacement without the need to disassemble or remove other equipment or building elements. Access coordinated with other building elements and equipment, including, but not limited to, ceiling and wall access panels, in a manner consistent with OSHA fall-protection regulations and safe work practices.
 - f. Utility connections are of the correct characteristics, as applicable.
 - g. Correct labeling and identification.
 - h. Startup Checks: Verify system readiness of equipment to be energized. Include manufacturer's standard startup procedures and forms.
- D. Startup: Perform and document initial operation of equipment to prove that it is installed properly and operates as intended according to manufacturer's standard startup procedures, at minimum.
- E. Performance Tests:
 - 1. Static Tests: As specified elsewhere, including, but not limited to, duct and pipe leakage tests, insulation-resistance tests, and water-penetration tests.

2. Component Performance Tests: Tests evaluate the performance of an input or output of components under a full range of operating conditions.
 3. Equipment and Assembly Performance Tests: Test and evaluate performance of equipment and assemblies under a full range of operating conditions and loads.
 4. System Performance Tests: Test and evaluate performance of systems under a full range of operating conditions and loads.
 5. Intersystem Performance Tests: Test and evaluate the interface of different systems under a full range of operating conditions and loads.
- F. Deferred Construction Checklists: Obtain Owner approval of proposed deferral of construction checklists, including proposed schedule of completion of each deferred construction checklist, before submitting request for Certificate of Construction Phase Commissioning Process Completion. When approved, deferred construction checklists may be completed after date of Construction Phase Commissioning Completion. Include the following in a request for Certificate of Construction Phase Commissioning Process Completion:
1. Identify deferred construction checklists by number and title.
 2. Provide a target schedule for completion of deferred construction checklists.
 3. Written approval of proposed deferred construction checklists, including approved schedule of completion of each deferred construction checklist.
- G. Delayed Construction Checklists: Obtain Owner approval of proposed delayed construction checklists, including proposed schedule of completion of each delayed construction checklist, before submitting request for Certificate of Construction Phase Commissioning Process Completion. When approved, delayed construction checklists may be completed after date of Construction Phase Commissioning Completion. Include the following in a request for Certificate of Construction-Phase Commissioning Process Completion:
1. Identify delayed construction checklist by construction checklist number and title.
 2. Provide a target schedule for completion of delayed construction checklists.
 3. Written approval of proposed delayed construction checklists, including approved schedule of completion of each delayed construction checklist.

3.3 GENERAL EXECUTION REQUIREMENTS

- A. Schedule and coordinate commissioning process with the Construction Schedule.
- B. Perform activities identified in construction checklists, including tests, and document results of actions as construction proceeds.
- C. Perform test demonstrations for Owner's Witness. Unless otherwise indicated, demonstrate tests for 100 percent of work to which the test applies.
- D. Report test data and commissioning issue resolutions.
- E. Schedule personnel to participate in and perform Commissioning process Work.
- F. Installing contractors' commissioning responsibilities include, but are not limited to, the following:
 1. Providing accurate, pre-functional information for building systems equipment from which the

Commissioning Plan will be developed and structured.

2. Operating the equipment and systems they install during tests.
3. Correcting and adjusting installed equipment to meet design intent and sequence of operations.
4. Providing additional necessary parts, pieces, equipment, and connectivity to make equipment operate and function to meet design intent and sequence of operations.
5. In addition, installing contractors may be required to assist in tests of equipment and systems with which their work interfaces.

3.4 COMMISSIONING COORDINATOR RESPONSIBILITIES

- A. Management and Coordination: Manage, schedule, and coordinate commissioning process, including, but not limited to, the following:
 1. Coordinate with subcontractors on their commissioning responsibilities and activities.
 2. Obtain, assemble, and submit commissioning documentation.
 3. Attend on-site commissioning meetings. Comply with requirements in Section 01 31 00 "Project Management and Coordination."
 4. Integrate commissioning schedule into the Construction Schedule. Update Construction Schedule at specified intervals and adequately advise with advanced notice the Owner's Commissioning Agent as to when scheduled construction activities requiring commissioning have slipped or are delayed.
 5. Review and comment on preliminary test procedures and data forms.
 6. Report inconsistencies and issues in system operations.
 7. Verify that tests have been completed and results comply with acceptance criteria, and that equipment and systems are ready before scheduling test demonstrations.
 8. Direct and coordinate test demonstrations.
 9. Coordinate witnessing of test demonstrations by Owner's field construction observers and Commissioning Agent.
 10. Coordinate and manage training. Be present during training sessions to direct video recording, present training, and direct the training presentations of others. Comply with requirements in Section 01 79 00 "Demonstration and Training."
 11. Prepare and submit specified commissioning reports.
 12. Track commissioning issues until resolution and retesting is successfully completed.
 13. Retain original records of Commissioning process Work, organized as required for the commissioning report. Provide Owner's representative access to these records on request.
 14. Assemble and submit commissioning report.

3.5 COMMISSIONING TESTING

- A. Quality Control: Construction checklists, including tests, are quality-control tools designed to improve the functional quality of Project. Test demonstrations evaluate the effectiveness of the Construction Manager's quality control processes.

- B. Owner's witness will be present to witness commissioning work requiring the signature of an owner's field construction observers, including, but not limited to, test demonstrations. Owner's Program Director will coordinate attendance by Owner's field construction observers with Construction Manager's published Commissioning Schedule. Owner's field construction observers will provide no labor or materials in the commissioning work. The only function of Owner's field construction observers will be to observe and comment on the progress and results of commissioning process.
- C. Construction Checklists:
 - 1. Complete construction checklists as Work is completed.
 - 2. Distribute construction checklists to installation contractors before they start work.
 - 3. Installers:
 - a. Verify installation using approved construction checklists as Work proceeds.
 - b. Complete and sign construction checklists weekly for work performed during the preceding week.
 - 4. Provide Commissioning Agent access to Construction Manager's construction checklists.
- D. Installation Compliance Issues: Record as an installation compliance issue Work found to be incomplete, inaccessible, at variance with the Contract Documents, nonfunctional, or that does not comply with construction checklists. Record installation compliance issues on the construction checklist at the time they are identified. Record corrective action and how future Work should be modified before signing off the construction checklist.
- E. Pre-Startup Audit: Prior to executing startup procedures, review completed installation checks to determine readiness for startup and operation. Report conditions, which, if left uncorrected, adversely impact the ability of systems or equipment to operate satisfactorily or to comply with acceptance criteria. Prepare pre-startup report for each system.
- F. Test Procedures and Test Data Forms:
 - 1. Test procedures shall define the step-by-step procedures to be used to execute tests and test demonstrations.
 - 2. Test procedures shall be specific to the make, model, and application of the equipment and systems being tested.
 - 3. Completed test data forms are the official records of the test results.
 - 4. Commissioning Agent will provide Construction Manager preliminary test procedures and test data forms for performance tests and commissioning tests after approval of Product Data, Shop Drawings, and preliminary operation and maintenance manual.
 - 5. Review preliminary test procedures and test data forms and provide comments within fourteen (14) days of receipt from Commissioning Agent. Review shall address the following:
 - a. Equipment protection and warranty issues, including, but not limited to, manufacturers' installation and startup recommendations, and operation and maintenance instructions.
 - b. Applicability of the procedure to the specific software, equipment, and systems approved for installation.
 - 6. After the Construction Manager has reviewed and commented on the preliminary test

procedures and test data forms, Commissioning Agent will revise and reissue the approved revised test procedures and test data forms marked "Approved for Testing."

7. Use only approved test procedures and test data forms marked "Approved for Testing" to perform and document tests and test demonstrations.

G. Functional Performance Testing:

1. The sampling rate for tests is 100 percent. The sampling rate for test demonstrations is 100 percent unless otherwise indicated.
2. Perform and complete each step of the approved test procedures in the order listed.
3. Record data observed during performance of tests on approved data forms at the time of test performance and when the results are observed.
4. Record test results that are not within the range of acceptable results on commissioning issue report forms in addition to recording the results on approved test procedures and data forms according to the "Commissioning Compliance Issues" Paragraph in this Article.
5. On completion of a test, sign the completed test procedure and data form. Tests for which test procedures and data forms are incomplete, not signed, or which indicate performance that does not comply with acceptance criteria will be rejected. Tests for which test procedures and data forms are rejected shall be repeated and results resubmitted.

H. Performance of Test Demonstration:

1. Perform test demonstrations on a sample of tests after test data submittals are approved. The sampling rate for test demonstrations shall be 100 percent unless otherwise indicated in the individual test specification.
2. Notify Owner's field construction observer and Commissioning Agent minimum seven days in advance of each test demonstration.
3. Perform and complete each step of the approved test procedures in the order listed.
4. Record data observed during performance of test demonstrations on approved data forms at the time of demonstration and when the results are observed.
5. Provide full access to Owner's field construction observer and Commissioning Agent to directly observe the performance of all aspects of system response during the test demonstration. On completion of a test demonstration, sign the completed data form and obtain signature of Owner's field construction observer and Commissioning Agent at the time of the test to authenticate the reported results.
6. Test demonstration data forms not signed by Construction Manager and field construction observer at the time of the completion of the test procedure will be rejected. Test demonstrations for which data forms are rejected shall be repeated and results shall be resubmitted.
7. False load test requirements are specified in related sections.
 - a. Where false load testing is specified, provide temporary equipment, power, controls, wiring, piping, valves, and other necessary equipment and connections required to apply the specified load to the system. False load system shall be capable of steady-state operation and modulation at the level of load specified. Equipment and systems permanently installed in this work shall not be used to create the false load without

Design Professional's written approval.

I. Deferred Tests:

1. Deferred Test List: Identify, in the request for Certificate of Construction-Phase Commissioning Process Completion, proposed deferred tests or other tests approved for deferral until specified seasonal or other conditions are available. When approved, deferred tests may be completed after the date of Construction-Phase Commissioning Completion. Identify proposed deferred tests in the request for Certificate of Construction-Phase Commissioning Process Completion as follows:
 - a. Identify deferred tests by number and title.
 - b. Provide a target schedule for completion of deferred tests.
2. Schedule and coordinate deferred tests. Schedule deferred tests when specified conditions are available. Notify Design Professional and Commissioning Agent at least seven working days (minimum) in advance of tests.
3. Where deferred tests are specified, coordinate participation of necessary personnel and of Design Professional, Commissioning Authority, and Owner's witness. Schedule deferred tests to minimize occupant and facility impact. Obtain Design Professional's approval of the proposed schedule.

J. Delayed Tests:

1. Delayed Test List: Identify proposed delayed tests. Obtain Owner approval of proposed delayed tests, including proposed schedule of completion of each delayed test, before submitting request for construction phase commissioning completion. Include the following in the request:
 - a. Identify delayed tests by test number and title.
 - b. Written approval of proposed delayed tests, including approved schedule of completion of delayed tests.
2. Schedule and coordinate delayed tests. Schedule delayed tests when conditions that caused the delay have been rectified. Notify Design Professional and Owner's field construction observer and Commissioning Agent at least seven days (minimum) in advance of tests.
3. Where delayed tests are approved, coordinate participation of necessary personnel of Design Professional, Owner's field construction observer and Commissioning Agent. Schedule delayed tests to minimize occupant and facility impact. Obtain Owner's approval of the proposed schedule.

K. Commissioning Compliance Issues:

1. Test results that are not within the range of acceptable results are commissioning compliance issues and are to be documented by the Owner's Commissioning Agent on the Corrective Action Report (CAR) log.
2. Track and report commissioning compliance issues on the CAR log until resolution and retesting are successfully completed. The Construction Manager must sign off on each deficient item after they have verified with their subcontractor the deficiency has been successfully and finally resolved.
3. If a test demonstration fails, determine the cause of failure. Direct timely resolution of issue

and repeat the testing demonstration. If a test demonstration must be repeated due to failure caused by Construction Manager work or materials, reimburse Owner for billed costs for the participation in the repeated demonstration.

4. Test Results: If a test demonstration fails to meet the acceptance criteria, perform the following:
 - a. Complete a commissioning compliance issue report form promptly on discovery of test results that do not comply with acceptance criteria.
 - b. Submit commissioning compliance issue report form within 24 hours of the test.
 - c. Determine the cause of the failure.
 - d. Establish responsibility for corrective action if the failure is due to conditions found to be Construction Manager's responsibility.
5. Commissioning Compliance Issue Report: Provide a commissioning compliance issue report for each issue. This form may be acquired from the Owner's Commissioning Agent. Do not report multiple issues on the same commissioning compliance issue report.
 - a. Exception: If an entire class of devices is determined to exhibit the identical issue, they may be reported on a single commissioning compliance issue report. (For example, if all return-air damper actuators that are specified to fail to the open position are found to fail to the closed position, they may be reported on a single commissioning issue report. If a single commissioning issue report is used for multiple commissioning compliance issues, each device shall be identified in the report, and the total number of devices at issue shall be identified.
 - b. Complete and submit initial commissioning compliance issue report immediately when the condition is observed.
 - c. Record the commissioning compliance issue report number and describe the deficient condition on the data form.
 - d. Resolve commissioning compliance issues promptly. Complete and submit the final commissioning compliance issue report when issues are resolved.
6. Diagnose and correct failed test demonstrations as follows:
 - a. Perform diagnostic tests and activities required to determine the fundamental cause of issues observed.
 - b. Record each step of the diagnostic procedure prior to performing the procedure. Update written procedure as changes become necessary.
 - c. Record the results of each step of the diagnostic procedure.
 - d. Record the conclusion of the diagnostic procedure on the fundamental cause of the issue.
 - e. Determine and record corrective action(s) required to resolve the issue(s).
 - f. Include diagnosis of fundamental cause of issues in commissioning compliance issue report.
7. Retest:
 - a. Schedule and repeat the complete test procedure for each test demonstration for which

acceptable results are not achieved. Obtain signature of Owner's field construction observer on retest data forms. Repeat test demonstration until acceptable results are achieved. Except for issues that are determined to result from design errors or omissions, or other conditions beyond Construction Manager's responsibility, compensate Owner for direct costs incurred as the result of repeated test demonstrations to achieve acceptable results.

- b. For each repeated test demonstration, submit a new test data form, marked "Retest."
- 8. Do not correct commissioning compliance issues during test demonstrations.
 - a. Exceptions will be allowed if the cause of the issue is obvious and resolution can be completed in less than ten (10) minutes. If corrections are made under this exception, the deficient conditions do not need to be documented.

3.6 COMMISSIONING MEETINGS

- A. The Owner's Commissioning Agent will schedule and conduct commissioning meetings. Comply with requirements in Section 01 31 00 "Project Management and Coordination."

3.7 SEQUENCING

- A. Sequencing of Commissioning Verification Activities: For a particular material, item of equipment, assembly, or system, perform the following in the order listed unless otherwise indicated:
 - 1. Construction Checklists:
 - a. Material checks.
 - b. Installation checks.
 - c. Startup, as appropriate. Some startups may depend on component performance. Such startups may follow component performance tests on which the startup depends.
 - d. Performance Tests:
 - i. Static tests, as appropriate.
 - ii. Component performance tests. Some component performance tests may depend on completion of startup. Such component performance tests may follow startup.
 - iii. Equipment and assembly performance tests.
 - iv. System performance tests.
 - v. Intersystem performance tests.
 - 2. Commissioning tests.
- B. Before performing commissioning tests, verify that materials, equipment, assemblies, and systems are delivered, installed, started, and adjusted to perform according to construction checklists.
- C. Verify system readiness of materials, equipment, assemblies by performing tests prior to performance testing demonstrations. Notify Design Professional via Request For Information (RFI) if acceptable results cannot be achieved due to design conditions beyond Construction Manager's control or responsibility.
- D. Commence tests as soon as installation checks for materials, equipment, assemblies, or systems are satisfactorily completed. Tests of a particular system may proceed prior to completion of other

systems, provided the incomplete work does not interfere with successful execution of test.

3.8 SCHEDULING

- A. Commence commissioning process as early in the construction period as possible.
- B. Commissioning Schedule: Integrate commissioning activities into Construction Schedule. See Section 01 32 00 "Construction Progress Documentation."
 - 1. Include detailed commissioning activities in monthly updated Construction Schedule and six-week duration construction schedules.
 - 2. Schedule the start date and duration for the following commissioning activities:
 - a. Submittals.
 - b. Preliminary operation and maintenance manual submittals.
 - c. Installation checks.
 - d. Startup, where required.
 - e. Performance tests.
 - f. Performance test demonstrations.
 - g. Commissioning tests.
 - h. Commissioning test demonstrations.
 - 3. Schedule shall include a line item for each installation check, startup, and test activity specific to the equipment or systems involved.
 - 4. Determine milestones and prerequisites for commissioning process. Show commissioning milestones, prerequisites, and dependencies in monthly updated critical-path-method construction schedule and short-interval schedule submittals.
- C. Two-Week Look-Ahead Commissioning Schedule:
 - 1. Two weeks prior to the beginning of tests, submit a detailed two-week look-ahead schedule. Thereafter, submit updated two-week look-ahead schedules weekly for the duration of commissioning process.
 - 2. Two-week look-ahead schedules shall identify the date, time, beginning location, Construction Manager personnel required, and anticipated duration for each startup or test activity.
 - 3. Use two-week look-ahead schedules to notify and coordinate participation of Owner's witnesses.
- D. Owner's Construction Observer Coordination:
 - 1. Coordinate Owner's construction observation participation directly with the field assigned construction observer(s) and/or Construction Manager Agent.
 - 2. Notify Design Professional of commissioning schedule changes at least seven workdays in advance for activities requiring the participation of Owner's field construction observer(s) and/or Construction Manager Agent.

3.9 COMMISSIONING REPORTS

A. Test Reports:

1. Pre-startup reports include observations of the conditions of installation, organized into the following sections:
 - a. Equipment Model Verification: Compare contract requirements, approved submittals, and provided equipment. Note inconsistencies and document for project record submission.
 - b. Preinstallation Physical Condition Checks: Observe physical condition of equipment prior to installation. Note conditions including, but not limited to, physical damage, corrosion, water damage, or other contamination or dirt.
 - c. Preinstallation Component Verification Checks: Verify components supplied with the equipment, preinstalled or field installed, are correctly installed, wired correctly, and functional. Verify external components required for proper operation of equipment correctly installed and functional. Note missing, improperly configured, improperly installed, or nonfunctional components.
 - d. Summary of Installation Compliance Issues and Corrective Actions: Identify installation compliance issues and the corrective actions for each. Verify that issues noted have been corrected.
 - e. Evaluation of System Readiness for Startup: For each item of equipment for each system for which startup is anticipated, document in summary form acceptable to Owner and Owner's Commissioning Agent, completion of equipment model verification, preinstallation physical condition checks, preinstallation component verification checks, and completion of corrective actions for installation compliance issues.
2. Test data reports include the following:
 - a. "As-tested" system configuration. Complete record of conditions under which the test was performed, including, but not limited to, the status of equipment, systems, and assemblies; temporary adjustments and settings; and ambient conditions.
 - b. Data and observations, including, but not limited to, data trend logs, recorded during the tests.
 - c. Signatures of individuals performing and witnessing tests.
 - d. Data trend logs accumulated overnight from the previous day of testing.
3. Commissioning Compliance Issue Reports: Report as commissioning compliance issues results of tests and test demonstrations that do not comply with acceptance criteria. Report only one issue per commissioning compliance issue report. Use sequentially numbered facsimiles of commissioning compliance issue report form included in this Section, or other form approved by Owner. Distribute commissioning compliance issue reports to parties responsible for taking corrective action. Identify the following:
 - a. Commissioning compliance issue report number. Assign unique, sequential numbers to individual commissioning compliance issue reports when they are created, to be used for tracking.
 - b. Action distribution list.
 - c. Report date.

- d. Test number and description.
 - e. Equipment identification and location.
 - f. Briefly describe observations about the performance associated with failure to achieve acceptable results. Identify the cause of failure if apparent.
 - g. Diagnostic procedure or plan to determine the cause (include in initial submittal)
 - h. Diagnosis of fundamental cause of issues as specified below (included in resubmittal).
 - i. Fundamental cause of unacceptable performance as determined by diagnostic tests and activities.
 - j. When issues have been resolved, update and resubmit the commissioning issue report forms by completing Part 2. Identify resolution taken and the dates and initials of the persons making the entries.
 - k. Schedule for retesting.
4. Weekly progress reports include information for tests conducted since the preceding report and the following:
- a. Completed data forms.
 - b. Equipment or system tested, including test number, system or equipment tag number and location, and notation about the apparent acceptability of results.
 - c. Activities scheduled but not conducted per schedule.
 - d. Commissioning compliance issue report log.
 - e. Schedule changes for remaining Commissioning-Process Work, if any.
5. Data trend logs shall be initiated and running prior to the time scheduled for the test demonstration.
- a. Trend log data format shall be multiple data series graphs. Where multiple data series are trend logged concurrently, present the data on a common horizontal time axis. Individual data series may be presented on a segmented vertical axis to avoid interference of one data series with another, and to accommodate different axis scale values. Graphs shall be sufficiently clear to interpret data within the accuracy required by the acceptance criteria.
 - b. Attach to the data form printed trend log data collected during the test or test demonstration.
 - c. Record, print out, and attach to the data form operator activity during the time the trend log is running. During the time the trend log is running, operator intervention not directed by the test procedure invalidates the test results.
6. System Alarm Logs: Record and print out a log of alarms that occurred since the last log was printed. Evaluate alarms to determine if the previous day's work resulted in any conditions that are not considered "normal operation."
- a. Conditions that are not considered "normal operation" shall be reported on a commissioning issue report attached to the alarm log. Resolve as necessary. The intent of this requirement is to discover control system points or sequences left in manual or disabled conditions, equipment left disconnected, set points left with abnormal values,

or similar conditions that may have resulted from failure to fully restore systems to normal, automatic control after test completion.

3.10 CERTIFICATE OF CONSTRUCTION PHASE COMMISSIONING PROCESS COMPLETION

- A. When Construction Manager considers that construction phase commissioning process, or a portion thereof which Owner agrees to accept separately, is complete, Construction Manager shall prepare and submit to Owner and Owner's Commissioning Agent a comprehensive list of items to be completed or corrected. Failure to include an item on such list does not alter Construction Manager's responsibility to complete commissioning process.
- B. On receipt of Construction Manager's list, the Owner's Commissioning Agent will inspect to determine whether the construction phase commissioning process or designated portion thereof is complete. If the Owner's Commissioning Agent's inspection discloses items, whether included on Construction Manager's list, which are not sufficiently complete as defined in "Construction Phase Commissioning Process Completion" Paragraph in the "Definitions" Article, Construction Manager shall, before issuance of the Certificate of Construction Phase Commissioning Process Completion, complete or correct such items on notification by the Owner's Commissioning Agent. In such case, the Construction Manager shall then submit a request for another inspection by the Owner's Commissioning Agent to determine construction-phase commissioning process completion.
- C. Construction Manager shall promptly correct deficient conditions and issues discovered during commissioning process. Costs of correcting such deficient conditions and issues, including additional testing and inspections, the cost of uncovering and replacement, and compensation for Design Professional and the Owner's Commissioning Agent services and expenses made necessary thereby, shall be at Construction Manager's expense.
- D. When construction phase commissioning process or designated portion is complete, the Owner's Commissioning Agent will prepare a Certificate of Construction Phase Commissioning Process Completion that shall establish the date of completion of construction phase commissioning process. Certificate of Construction Phase Commissioning Process Completion shall be submitted prior to requesting inspection for determining date of Substantial Completion.

END OF SECTION

SECTION OP - TEXAS TECH UNIVERSITY SYSTEM COMPONENT INSTITUTIONS
OPERATING POLICIES AND PROCEDURES

PART 1. INSTITUTIONAL OPERATING POLICIES

1.1 TEXAS TECH UNIVERSITY

A. <https://www.depts.ttu.edu/opmanual/>

1.2 TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER

A. <https://www.ttuhscc.edu/administration/operating-policies/>

1.3 ANGELO STATE UNIVERSITY

A. <https://www.angelo.edu/administrative-support/operating-policies-and-procedures/>

1.4 TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER – EL PASO

A. <https://elpaso.ttuhscc.edu/opp/>

1.5 MIDWESTERN STATE UNIVERSITY

A. <https://public.powerdms.com/MidwesternState/tree/>

END OF SECTION

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Demolition and removal of selected portions of building or structure.
 - 2. Salvage of existing items to be reused or recycled.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

- A. 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 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.

1.5 PREINSTALLATION MEETINGS

- A. Pre-demolition Conference: Conduct conference at Project site.
 - 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review structural load limitations of existing structure.
 - 3. Review and finalize selective demolition schedule and verify availability of

materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.

4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.6 SUBMITTALS

- A. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- B. Schedule of Selective Demolition Activities: Indicate the following:
 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
 2. Interruption of utility services. Indicate how long utility services will be interrupted.
 3. Coordination for shutoff, capping, and continuation of utility services.
 4. Use of elevator and stairs.
 5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
- C. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.
- D. Pre-demolition Photographs or Video: Submit before Work begins.
- E. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

1.7 CLOSEOUT SUBMITTALS

- A. Inventory: Submit a list of items that have been removed and salvaged.
- B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.8 QUALITY ASSURANCE

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

1.9 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by 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. Hazardous materials will be removed by Owner before start of the Work.
 - 2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner 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.

1.10 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties. Notify warrantor before proceeding.
- B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

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 ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.
- C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
 - 1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
 - 2. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.
- F. Survey of Existing Conditions: Record existing conditions by use of measured drawings preconstruction photographs preconstruction videotapes and templates.
 - 1. Comply with requirements specified in Division 01.
 - 2. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.
 - 3. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

1. Comply with requirements for existing services/systems interruptions specified in Division 01.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
 1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
 2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
 3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
 - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
 - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
 - g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.
- C. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks,

walkways, and other adjacent occupied and used facilities.

1. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
 5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 01 Section "Temporary Facilities and Controls."
- C. Temporary Shoring: 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.
 1. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

- 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. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 2. 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, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.

3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly. Comply with requirements in Division 01 Section "Construction Waste Management and Disposal."

B. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

C. 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 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.

D. 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.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.
- B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.
- C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.
- D. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings." Do not use methods requiring solvent-based adhesive strippers.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
 - 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 building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
 - 4. Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."
- B. Disposal: Transport demolished materials and dispose of at designated spoil areas on Owner's property.

3.7 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to conditions existing prior to selective demolition operations.

END OF SECTION 024119

SECTION 033543.16 - SEALED CONCRETE FINISHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes:
 - 1. Finishing floor slabs.
 - 2. Surface treatment with sealer.

1.3 RELATED REQUIREMENTS

- A. Division 09 Floor Finishes.

1.4 SUBMITTALS

- A. General: Submit under provisions of 013300 - Submittal Procedures.
- B. Product Data:
 - 1. Submit concrete finishes manufacturer's specifications and test data.
 - 2. Submit concrete finishes describing product to be provided, giving manufacturer's name and product name for the specified material proposed to be provided under this section.
 - 3. Submit concrete finishes manufacturer's recommended installation procedures; which when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.
 - 4. Submit concrete finishes technical data sheet giving descriptive data, curing time, and application requirements.
 - 5. Submit concrete finishes manufacturer's Safety Data Sheet (SDS) and other safety requirements.
 - a. Submit SDS data to Owner only; do not submit to Architect.
- C. Test Reports:
 - 1. Provide certified test reports, prepared by an independent testing laboratory, confirming compliance with specified performance criteria.
- D. Maintenance Data: For inclusion in closeout maintenance manuals.

1. Provide data on maintenance renewal of applied coatings.

1.5 QUALITY ASSURANCE

A. Installer Qualifications:

1. Installer shall have minimum five years' experience, and provide an adequate number of skilled workers who are thoroughly trained and experienced in the specified applications.
2. Applicator shall be familiar with the references requirements and the methods needed for acceptable performance of work of this section.
 - a. Perform Work in accordance with ACI 301.

B. Manufacturer's Certification:

1. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years of documented experience.

C. Mock-ups:

1. Apply mock-ups of each type finish, to demonstrate typical joints, surface finish, color variation (if any), and standard of workmanship.
 - a. Build mock-ups approximately 50 square feet in the location indicated or if not indicated, as directed by the Architect or Owner Representative.
 - b. Notify Architect or Owner Representative seven days in advance of dates and times when mock-ups will be constructed.
 - c. Obtain from the Architect or Owner Representative approval of mock-ups before starting construction.
 - d. If the Architect or Owner Representative determines that mock-ups do not meet requirements, demolish and remove them from the site and cast others until mock-ups are approved.
 - e. Maintain mock-ups during construction in an undisturbed condition as a standard for judging the completed work.
 - f. Approved mock-ups may become part of the completed work if undisturbed at time of substantial completion.

D. Protection:

1. No satisfactory chemical or cleaning procedure is available to remove petroleum stains from the concrete surface. Prevention is therefore essential.

- a. All hydraulic powered equipment must be diapered to avoid staining of the concrete.
 - b. No trade will park vehicles on the inside slab. If necessary to complete their scope of work, drop cloths will be placed under vehicles at all times.
 - c. No pipe cutting machine will be used on the inside floor slab.
 - d. Steel will not be placed on interior slab to avoid rust staining.
 - e. Acids and acidic detergents will not come into contact with slab.
 - f. All trades informed that the slab must be protected at all times.
- E. Pre-installation Conference:
- 1. General contractor shall arrange a meeting not less than two weeks prior to starting work.
 - a. Attendance:
 - 1) General Contractor.
 - 2) Architect/Owner's Representative.
 - 3) Installer's Representative.
 - 4) All other affected installers.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage.
 - 1. Schedule delivery to minimize time on site for storage of materials, without affecting sequence of construction operations.
 - 2. Inspect for damage prior to acceptance.
- B. Store materials, in manufacturer's unopened packing, to prevent deterioration, and in strict accordance with manufacturer's recommendations.

1.7 PROJECT CONDITIONS

- A. Maintain light level equivalent to minimum 200 W light source, placed 8 feet above the floor surface, for each 425 sq. ft of floor being finished.
- B. Do not finish floors until interior heating system is operational.
- C. Maintain ambient temperature of 50 degrees F minimum.
- D. Provide ventilation sufficient to prevent injurious gases from temporary heat or other sources affecting concrete.

- E. Close areas to traffic during floor application and after application, for time period recommended in writing by manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Refer to Architectural finish schedule for additional requirements.
- B. Basis-of-Design: Dunne-Edwards
- C. Subject to the requirements specified herein, other manufacturers offering acceptable products may include, but are not limited to:
 - 1. XYPEX
 - 2. Substitutions: See Section 012500 - Substitution Procedures.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrate, with installer present, for conditions affecting performance of finish.
 - 1. Verify that base slab meets finish and surface profile requirements as recommended by Manufacturer.
 - 2. Prior to application, verify that floor surfaces are free of construction latents.
- B. Correct conditions detrimental to timely and proper work. Do not proceed until unsatisfactory conditions are corrected.
 - 1. Commencement of Work constitutes acceptance of conditions and substrates by installer.

3.2 PREPARATION

- A. Broom clean surfaces prior to preparation.
- B. Prepare surfaces in strict accordance with Manufacturer's written instructions.

3.3 APPLICATION

- A. General: Commence floor finish applications in presence of manufacturer's technical representative.
- B. Finish concrete floor surfaces in accordance with ACI 301 and ACI 302.1R, and Manufacturer's written instructions.
- C. Apply sealer directly from container with no dilution in one saturating coat. Aggressively scrub into surface with a mechanical scrubber or bristle broom. Do not use metallic brushes.

- D. Keep surface wet for a minimum of 30 minutes and continue scrubbing and/or brooming. When product begins to thicken, sprinkle with water and scrub another 10-15 minutes.
- E. Thoroughly wash with clean water to remove all remaining solution from floor by squeegee and wet vacuum.
- F. Allow floor to dry thoroughly for minimum of 24 hours before allowing traffic on sealed floor.

3.4 CLEANING AND PROTECTION

- A. The premises shall be kept clean and free of debris at all times.
- B. Remove spatter from adjoining surfaces, as necessary.
- C. Remove packaging and construction debris and legally dispose of off-site.
- D. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning recommendations and comply with their documented instructions.
- E. Protect finished work until fully cured in accordance with manufacturer's recommendations.

END OF SECTION 033543.16

SECTION 055001 - METAL FABRICATIONS - INTERIOR

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Steel framing and supports for countertops.
 - 2. Steel framing and supports for applications where framing and supports are not specified in other Sections.
 - 3. Loose bearing and leveling plates for applications where they are not specified in other Sections.

1.3 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design metal framing and supports, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

1.4 SUBMITTALS

- A. Product Data: For the following:
 - 1. Paint products.
 - 2. Grout.
- B. Shop Drawings: Show fabrication and installation details for metal fabrications.
 - 1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
- C. Welding certificates.

1.5 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code - Steel."
- B. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1, "Structural Welding Code - Steel."

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

1.7 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.2 FERROUS METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36.
- B. Steel Pipe: ASTM A 53, standard weight (Schedule 40) unless otherwise indicated.

2.3 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
 - 1. Provide stainless-steel fasteners for fastening aluminum.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.
- C. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 325, Type 3; with hex nuts, ASTM A 563, Grade C3; and, where indicated, flat washers.
- D. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts,

ASTM F 593; with hex nuts, ASTM F 594; and, where indicated, flat washers; Alloy Group 1.

- E. Anchor Bolts: ASTM F 1554, Grade 36, of dimensions indicated; with nuts, ASTM A 563; and, where indicated, flat washers.
 - 1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.
- F. Eyebolts: ASTM A 489.
- G. Machine Screws: ASME B18.6.3.
- H. Lag Screws: ASME B18.2.1.
- I. Wood Screws: Flat head, ASME B18.6.1.
- J. Plain Washers: Round, ASME B18.22.1.
- K. Lock Washers: Helical, spring type, ASME B18.21.1.
- L. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
- M. Post-Installed Anchors: chemical anchors.
 - 1. Material for Exterior Locations and Where Stainless Steel is Indicated: Alloy Group 1 stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594.

2.4 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
- C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- E. Non-shrink, Metallic Grout: Factory-packaged, ferrous-aggregate grout complying with ASTM C 1107, specifically recommended by manufacturer for heavy-duty loading applications.
- F. Non-shrink, Nonmetallic Grout: Factory-packaged, non-staining, non-corrosive,

nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.5 FABRICATION, GENERAL

- A. Shop Assembly: Pre-assemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

1. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

2.6 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
 1. Fabricate units from slotted channel framing where indicated.
- C. Fabricate supports for operable partitions from continuous steel beams of sizes recommended by partition manufacturer with attached bearing plates, anchors, and braces as recommended by partition manufacturer. Drill or punch bottom flanges of beams to receive partition track hanger rods; locate holes where indicated on operable partition Shop Drawings.
- D. Prime miscellaneous framing and supports with where indicated.

2.7 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.
- C. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.8 STEEL AND IRON FINISHES

- A. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.
 1. Shop prime with universal shop primer unless zinc-rich primer is indicated.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for

installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
 - 1. Cast Aluminum: Heavy coat of bituminous paint.
 - 2. Extruded Aluminum: Two coats of clear lacquer.

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Anchor supports for operable partitions securely to and rigidly brace from building structure.

3.3 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - 1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 09 Painting Sections.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 055001

SECTION 060660 - PLASTIC FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the Plastic Fabrication as shown and specified in the described system(s):

- 1. Feature Wall

1.3 SUBMITTALS

- A. General: Submit the following in accordance with conditions of contract and Division 1 specification section 013300 "Submittal Procedures".
- B. Product Data: Submit manufacturer's product data; include product description, fabrication information, and compliance with specified performance requirements.
- C. Submit product test reports from a qualified independent 3rd party testing agency indicating each type and class of panel system complies with the project performance requirements, based on comprehensive testing of current products. Previously completed test reports will be acceptable if for current manufacturer and indicative of products used on this project.
 - 1. Test reports required are:
 - a. Rate of Burning (ASTM D 635)
 - b. Self-Ignition Temperature (ASTM D 1929)
 - c. Density of Smoke (ASTM D 2843)
 - d. Flame Spread and Smoke Developed testing (ASTM E 84)
 - e. Room Corner Burn Test (NFPA 286)
 - f. Extent of Burning (UL 94)
 - g. Impact strength (ASTM D 3763)
 - h. Safety glazing impact resistance (ANSI Z97.1-2004)
 - i. UPIIT Test for Combustion Product Toxicity

- j. Passes NFPA 269/ASTM1678 for Combustion Product Toxicity
- k. Dynamic environmental testing (ASTM standards D 5116 or D 6670)
- l. UL Yellowcard
- D. Building Approvals: Plastic Fabrications are to have been evaluated and must be registered with and comply to requirements of the following jurisdictions:
 - 1. ICC-ES Report for Light Transmitting Plastics and Interior Finishes
- E. Shop Drawings: Include plans, elevations, sections, panel dimensions, details, and attachments to other work.
- F. Samples for Initial Selection:
 - 1. Submit minimum 2-inch by 2-inch samples. Indicate full color, texture and pattern variation.
- G. Samples for Verification:
 - 1. Submit minimum 4-inch by 4-inch sample for each type, texture, pattern and color of solid plastic fabrication.
- H. Mockups:
 - 1. Build mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects.
 - 2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- I. Maintenance Data: Submit manufacturer's care and maintenance data, including care, repair and cleaning instructions. Include in Project closeout documents.

1.4 QUALITY ASSURANCE

- A. Manufacturers Qualifications
 - 1. Materials and systems shall be manufactured by a company continuously and regularly employed in the manufacture of specified materials for a period of at least five (5) consecutive years and which can show evidence of those materials being satisfactorily used on at least six (6) projects of similar size, scope and location. At least three (3) of the projects shall have been successful for use five (5) years or longer.
 - 2. Manufactured panels must be produced from a minimum of 40% pre-consumer recycle content. This recycle content must be certified by a recognized 3rd party certification group, such as Scientific Certification Systems (SCS).

3. Completely PVC – Free product
4. Manufacturer must offer a documented reclaim process that will take back, at the manufacturers cost, panels that are at their end-of life cycle.
5. Manufacturer must have a 3rd party completed Life Cycle Analysis
6. Manufacturer must have an Environmental Product Declaration (EPD).

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver Plastic Fabrications, systems and specified items in manufacturer's standard protective packaging.
- B. Do not deliver Plastic Fabrications, system, components and accessories to Project site until areas are ready for installation.
- C. Store materials in a flat orientation in a dry place that is not exposed to exterior elements.
- D. Handle materials to prevent damage to finished surfaces. Provide protective coverings to prevent damage or staining following installation for duration of project.
- E. Before installing Plastic Fabrications, permit them to reach room temperature.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install Solid Polymer Fabrications until spaces are enclosed and weatherproof, and ambient temperatures and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.7 WARRANTY

- A. Manufacturer's Special Warranty on Plastic Fabrications: Manufacturer's standard form agreeing to repair or replace units that fail in material or workmanship within the specified warranty period.
- B. Warranty Period: 1 year after the date of substantial completion.
- C. The warranty shall not deprive the owner of other rights or remedies the Owner may have under other provisions of the Contract Documents, and is in addition to and runs concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Basis-of-Design Manufacturer: 3form, LLC

2.2 MATERIALS

- A. Varia Ecoresin Sheet
 - 1. Engineered co-polyester resin
 - 2. Sheet Size: Maximum 4' x 10'
 - 3. Thickness: Minimum 1/16"
- B. Interlayer Materials: Compatible with polyesters and bonding process to create a monolithic sheet of material when complete.
- C. Sheet minimum performance attributes:
 - 1. Rate of Burning (ASTM D 635). Material shall attain CC1 Rating for a nominal thickness of 1.5 mm (0.060 in.) and greater.
 - 2. Self-Ignition Temperature (ASTM D 1929). Material shall have a Self-ignition temperature greater than 650°F.
 - 3. Density of Smoke (ASTM D 2843). Material shall have a smoke density less than 75%.
 - 4. Flame spread and Smoke developed testing (ASTM E 84). Material shall be able to meet a level of Class A (Flame spread less than 25 and smoke less than 450) at thickness of 1/8", 3/16" and 1".
 - 5. Room Corner Burn Test (NFPA 286). Material shall meet Class A criteria at 1/4" (walls only) and 3/8" (walls only/standoffs only) thickness.
 - 6. Extent of Burning (UL 94). Shall submit UL card.
 - 7. Impact strength. Minimum impact strength test as measured by ASTM D 3763 of 20 ft. lbs.
 - 8. Safety Glazing. Material shall attain a Class A impact rating in accordance with ANSI Z97.1-2004 at 1/8" thickness.
 - 9. UPITT Test for Combustion Product Toxicity: Product shall be recorded as "not more toxic than wood".
 - 10. NFPA 269/ASTM 1678 test for toxicity: Product shall have a best predicted LC₅₀ value ≤ 80.8 g/m³ Product shall have a best predicted corrected for post-flashover conditions LC₅₀ value ≤ 19.0 g/m³

11. Dynamic environmental testing (ASTM standards D 5116 or D 6670). Panels shall not have detectable VOC off-gassing agents and shall be have Greenguard Indoor Air Quality Children and Schools certified.
12. Panels shall be produced from a minimum of 40% pre-consumer recycle content. This recycle content shall be certified by a recognized 3rd party certification group, such as Scientific Certification Systems (SCS).
13. Building Approvals: Plastic Fabrications are to have been evaluated and shall be registered with and comply to requirements of the following jurisdictions:
 - a. ICC-ES Report for Interior Finishes and Light Transmitting plastics

2.3 FABRICATION

- A. General: Fabricate Plastic Fabrications to designs, sizes and thicknesses indicated and to comply with indicated standards. Sizes, profiles and other characteristics are indicated on the drawings.
- B. Comply with manufacturer's written recommendations for fabrication.
- C. Machining: Acceptable means of machining are listed below. Ensure that material is not chipped or warped by machining operations.
 1. Sawing: Select equipment and blades suitable for type of cut required.
 2. Drilling: Drills specifically designed for use with plastic products.
 3. Milling: Climb cut where possible.
 4. Routing
 5. Tapping
- D. Forming: Form products to shapes indicated using the appropriate method listed below. Comply with manufacturer's written instructions.
 1. Cold Bending
 2. Hot Bending
 3. Thermoforming: Acceptable only on uncoated material.
 4. Drape Forming
 5. Matched Mold Forming
 6. Mechanical Forming
- E. Laminating: Laminate to substrates indicated using adhesives and techniques recommended by manufacturer.

2.4 MISCELLANEOUS MATERIALS

- A. General: Provide products of material, size, and shape required for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaner: Type recommended by manufacturer.
- C. Fasteners: Use screws designed specifically for plastics. Self-threading screws are acceptable for permanent installations. Provide threaded metal inserts for applications requiring frequent disassembly such as light fixtures.
- D. Bonding Cements: May be achieved with solvents or adhesives, suitable for use with product and application.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where installation of Plastic Fabrications will occur, with Installer present, for compliance with manufacturer's requirements. Verify that substrates and conditions are satisfactory for installation and comply with requirements specified.

3.2 INSTALLATION

- A. General: Comply with manufacturer's written instructions for the installation of Plastic Fabrications.
- B. Manufacturer's shop to fabricate items to the greatest degree possible.
- C. Utilize fasteners, adhesives and bonding agents recommended by manufacturer for type of installation indicated. Material that is chipped, warped, hazed or discolored as a result of installation or fabrication methods will be rejected.
- D. Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.
- E. Form field joints using manufacturer's recommended procedures. Locate seams in panels so that they are not directly in line with seams in substrates.

3.3 CLEANING AND PROTECTION

- A. Protect surfaces from damage until date of substantial completion. Repair work or replace damaged work, which cannot be repaired to Architect's satisfaction.

END OF SECTION 060660

SECTION 061001 - ROUGH CARPENTRY - INTERIOR

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Wood blocking and nailers.
 - 2. Plywood backing panels.

1.3 DEFINITIONS

- A. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- B. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 - 2. WCLIB: West Coast Lumber Inspection Bureau.
 - 3. WWPA: Western Wood Products Association.

1.4 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
 - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
 - 3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a

qualified independent testing agency according to ASTM D5664.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

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, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded 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 grade stamp of grading agency.
 - 2. 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.
 - 3. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWP A U1; Use Category UC2 for interior 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 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 items indicated on Drawings, and the following:
 - 1. Blocking, stripping, and similar members in connection with waterproofing.
 - 2. Wood sills, sleepers, blocking, and similar concealed members in contact with masonry or concrete.

2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and 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 E84, 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. Use treatment that does not promote corrosion of metal fasteners.
 - 2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D3201 at 92 percent relative humidity. Use where exterior type is not indicated.
 - 3. Design Value Adjustment Factors: Treated lumber shall be tested according to ASTM D5664 and design value adjustment factors shall be calculated according to ASTM D6841.
- 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 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 - 1. Blocking.
 - 2. Nailers.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber and any of the following species:
 - 1. Spruce-Pine-Fir (South); NeLMA, WCLIB, or WWPA.
- 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 cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.5 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: DOC PS 1, Exterior, AC, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.
 - 1. Plywood shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.6 FASTENERS

- A. General: Provide fasteners of size and type indicated that 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 of Type 304 stainless steel.
- B. Nails, Brads, and Staples: ASTM F1667.
- 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 A307, Grade A; with ASTM A563 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 E488 conducted by a qualified independent testing and inspecting agency.
 - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B633, Class Fe/Zn 5.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.
- D. Do not splice structural members between supports unless otherwise indicated.
- E. Provide blocking as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- F. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- G. Comply with AWP A M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
 2. Use copper naphthenate for items not continuously protected from liquid water.
- H. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
 2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
- I. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Where wood-preserved-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

3.3 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from 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 weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061001

SECTION 064100 - ARCHITECTURAL WOOD CASEWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes:
 - 1. Specially fabricated cabinet units.
 - 2. Laminate Countertops.
 - 3. Cabinet hardware.
 - 4. Preparation for installing utilities.

1.3 RELATED REQUIREMENTS

- A. Section 061001 - Rough Carpentry - Interior.
- B. Section 123661.19 - Quartz Agglomerate Countertops.

1.4 SUBMITTALS

- A. Submit under provisions of 013300 - Submittal Procedures.
- B. Shop Drawings: Indicate materials, component profiles and elevations, assembly methods, joint details, fastening methods, accessory listings, hardware location and schedule of finishes.
- C. Product Data: Provide data for hardware accessories.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Custom quality, unless other quality is indicated for specific items.
- B. Fabricate millwork and cabinetry in accordance with ANSI A161.1, NEMA LD3, and general static load testing performed and certified by an independent testing agency, covering the following areas of product performance, with these minimum results:
 - 1. Base cabinet construction/racking test: 800 lbs.
 - 2. Cabinet front joint loading test: 425 lbs.
 - 3. Wall cabinet static load test: 2,000 lbs.
 - 4. Drawer front joint loading test: 600 lbs.

5. Drawer construction/static load test: 750 lbs.
6. Cabinet adjustable shelf support device/static load test: 300 lbs.
- C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of documented experience.
- D. Manufacturer Qualifications: Member in good standing of the Architectural Woodwork Institute (AWI) and familiar with the AWI/AWMAC QSI.
- E. Mock-Up: Provide mock-up of typical base cabinet, wall cabinet, and countertop, including hardware, finishes, and plumbing accessories.
 1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- F. Pre-installation Conference:
 1. General contractor shall arrange a meeting not less than two weeks prior to starting work.
 - a. Attendance:
 - 1) General Contractor.
 - 2) Architect/Owner's Representative.
 - 3) Installer's Representative.
 - 4) All other affected installers.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage.
 1. Schedule delivery to minimize time on site for storage of materials, without affecting sequence of construction operations.
 2. Inspect for damage prior to acceptance.
 3. Store materials, in manufacturer's unopened packing, to prevent deterioration, and in strict accordance with manufacturer's recommendations.
 - a. Protect units from moisture damage.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with manufacturer's written instructions regarding conditions affecting application.
- B. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

- C. Environmental Requirements: do not install casework until permanent HVAC systems are operating and temperature and humidity have been stabilized for at least one (1) week.
 - 1. Manufacturer/Supplier shall advise Contractor of temperature and humidity requirements for architectural casework installation areas.
- D. Conditions: Do not store or install casework in building until concrete, masonry, and drywall/plaster work is dry.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering
 - 1. products that may be incorporated into the Work may include, but are not limited to, the
 - 2. following:
 - a. Signature Cabinets.
 - b. Republic.
 - c. Normac.
 - d. Master Woodcraft.

2.2 WOOD BASED COMPONENTS

- A. Wood fabricated from old growth timber is not permitted.

2.3 LUMBER MATERIALS

- A. Softwood Lumber: NIST PS 20; Graded in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Grade II/Custom; average moisture content of 5-10 percent; species as recommended by manufacturer.
- B. Hardwood Lumber: NHLA; Graded in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Grade II/Custom; average moisture content of 5-10 percent; species as recommended by manufacturer.

2.4 PANEL MATERIALS

- A. Particleboard: ANSI A208.1; medium density industrial type as specified in AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, composed of wood chips bonded with interior grade adhesive under heat and pressure; sanded faces; thickness as required; use for components indicated on drawings.

- B. Medium Density Fiberboard (MDF): ANSI A208.2; type as specified in AWI/AWMAC Architectural Woodwork Quality Standards Illustrated; composed of wood fibers pressure bonded with moisture resistant adhesive to suit application; sanded faces; thickness as required.
 - 1. Use as core for plastic laminate faced casework, typical, unless otherwise indicated.

2.5 LAMINATE MATERIALS

- A. Manufacturers:
 - 1. Refer to Architectural Finish Schedule for Basis-of-Design products.
 - 2. Manufacturers offering acceptable products may include, but are not limited to:
 - a. Formica Corporation: www.formica.com.
 - b. Wilsonart International, Inc: www.wilsonart.com.
 - c. Substitutions: See Section 012500 - Substitution Procedures
- B. High Pressure Decorative Laminate (HPDL): NEMA LD 3, types as recommended for specific applications and as follows:
 - 1. Countertops: HGS, 0.048 inch nominal thickness, through color, colors as scheduled, finish as scheduled.
 - 2. Horizontal Surfaces: HGL, 0.039 inch nominal thickness, through color, colors as scheduled, finish as scheduled.
 - 3. Vertical Surfaces: VGS, 0.028 inch nominal thickness, through color, colors as scheduled, finish as scheduled.
 - 4. Cabinet Liner: CLS, 0.020 inch nominal thickness, through color, colors as scheduled, finish as scheduled.
 - 5. Laminate Backer: BKL, 0.020 inch nominal thickness, undecorated; for application to concealed backside of panels faced with high pressure decorative laminate.

2.6 COUNTERTOPS

- A. Plastic Laminate Countertops: Medium density fiberboard substrate covered with HPDL, except provide marine grade plywood, sanded, at countertops with sinks.

2.7 EDGING

- A. Provide the following in accordance with "Edging Locations":
 - 1. Flat Edge PVC: 0.020 inch. Solid, high-impact, purified, color-thru, acid resistant, machine-applied with hot melt adhesives.

2. 3 mm PVC: Solid, high-impact, purified, color-thru, acid resistant, pre-lamination primed edging, machine-applied with hot melt adhesives, and machine profiled to 1/8 inch radius.

B. Edging Locations:

1. Cabinet body edge, including door/drawer front spacer rail: Flat Edge PVC, color matched to door/drawer face or as selected.
2. Forward edge of interior body components, interior dividers, shelf, and top edges of drawer body: Flat Edge PVC to match cabinet interior surface color.
3. Door/Drawer-Front edging, countertops: 3mm PVC, color matched to standard laminates.

2.8 ACCESSORIES

- A. Adhesive: Type recommended by AWI/AWMAC to suit application.
- B. Fasteners: Size and type to suit application.
- C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel, or chrome-plated finish in exposed locations.
- D. Concealed Joint Fasteners: Threaded steel.

2.9 HARDWARE

- A. Refer to Architectural details and finish schedule for basis-of-design.
- B. Manufacturers offering acceptable products may include, but are not limited to:
 1. Accuride International, Inc.; www accuride com
 2. National Manufacturing Company; www natman com
 3. Knappe & Vogt Manufacturing Company: www knapeandvogt com.
 4. Ives; www ives ingersollrand com
 5. Stanley; www stanleyhardware com
- C. Adjustable Shelf Supports:
 1. Dual-pin design with anti-tip-up shelf restraints for both 3/4 inch and 1 inch shelves.
 2. Include keel to retard shelf slide-off, and slot for mechanical attachment of shelf to clip.
- D. Drawer and Door Pulls: "U" shaped wire pull, bronze with satin finish, 4 inch centers.
- E. Sliding Door Pulls: Circular shape for recessed installation, bronze with satin finish.

- F. Cabinet Locks: Five-disk tumbler cam-style with strike. Locks on cabinets in same room keyed alike. Provide two (2) keys per room where doors and drawers are scheduled to receive locks. Dull chrome finish. Lock core shall be removable with a control key, permitting Owner to change lock arrangements without tools.
- G. Catches: Magnetic.
- H. Drawer Slides:
 - 1. Type: Full extension with overtravel.
 - 2. Static Load Capacity: Heavy Duty grade.
 - 3. Mounting: Side mounted.
 - 4. Stops: Integral type.
 - 5. Features: Provide self closing/stay closed and special finish epoxy finish type.
- I. File Drawer and Paper Storage Slides:
 - 1. Type: Full extension.
 - 2. Static Load Capacity: Extra Heavy Duty grade.
 - 3. Mounting: Side mounted.
 - 4. Stops: Integral type.
 - 5. Features: Provide self closing/stay closed and special finish epoxy coated type.
- J. Hinges: Heavy-duty, five-knuckle, institutional, self-closing type, BHMA No. A156.9 Grade 1, mill ground, hospital tip, Teflon coated, white.
- K. Sliding Door Track Assemblies: Upper and lower track of satin anodized aluminum, with matching shoe equipped with nylon rollers.
- L. Concealed Brackets: A&M Hardware - Concealed Bracket, C-24. Color as indicated on drawings.

2.10 SHOP TREATMENT OF WOOD MATERIALS

- A. Provide UL approved identification on fire retardant treated material.
- B. Deliver fire retardant treated materials cut to required sizes. Minimize field cutting.

2.11 SPECIALTY ITEMS

- A. Grommets:
 - 1. Size: 2-1/2 inches diameter with "Flip-Top" tab in cap.
 - 2. Colors: As selected by Architect from manufacturer's available colors.
 - 3. Number/Location: Where electrical, telephone, and computer data wiring need to pass through tops whether shown or not.

4. Basis-of-Design: Model No. EDP3 manufactured by Doug Mockett & Company, Inc., Manhattan Beach, CA; (800) 523-1269, or Architect approved equal.
- B. Keyboard Drawers (At all knee spaces):
 1. Basis-of-Design: No. SD-1 as manufactured by Knap & Vogt; or Architect approved equal.
- C. Molded Personal Pencil Drawer: High-impact 100 Polystyrene with in-stop, out-stop, and self-closing features. Provide under top mounted 100 lb self-closing slides. Twelve compartment drawer body, and slides, Black.

2.12 FABRICATION

- A. Cabinet Style: Flush overlay.
- B. Cabinet Doors and Drawer Fronts: Flush style.
- C. Drawer Construction Technique: Dovetail joints.
- D. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.
- E. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.
- F. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.
- G. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.
 1. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
 2. Cap exposed plastic laminate finish edges with material of same finish and pattern.
- H. Provide cutouts for plumbing fixtures. Verify locations of cutouts from on-site dimensions. Prime paint cut edges.
- I. Cabinet components shall be of the following minimum core thicknesses:
 1. Cabinet backs, drawer body, and drawer bottoms: 1/2 inch particleboard
 2. Door and drawer face, base, wall, and tall cabinet tops and bottoms, cabinet sides, drawer
 3. spreaders, cabinet back rear hangstrips, structural dividers, and exposed cabinet backs: 3/4 inch particleboard

4. Work surfaces and countertops: 1 inch particleboard, except use plywood core at counters with sinks.
 5. Shelves: 3/4 inch particleboard core for 30 inches long or less, 1 inch thick particleboard core for more than 30 inches long; 14" deep, unless otherwise noted.
 - a. Provide vertical dividers for shelves over 36 inches long.
 6. Cabinet Toe-Base: 3/4 inch plywood. No MDF within four (4) inches of floor.
- J. Countertops and Backsplashes:
1. Countertops: Provide countertops with 3 mm PVC edge at work surfaces and no-drip edge at tops with sinks in as long as practical continuous lengths.
 - a. Provide field glued splines at joints. No joints closer than 24 inches either side of sink cutout.
 2. Backsplash: Integral to countertop, 4 inch high unless otherwise shown.
 - a. Fabricate with single continuous sheet of laminate from front counter to top of splash with no joints from horizontal to vertical application.
 - b. No joints shall occur at sink openings.
 3. At exposed countertop end corners, provide 1 inch radius, or similar safety treatment.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that project conditions and substrates are acceptable, to the installer, to begin installation of work of this section.
 1. Verify adequacy of backing and support framing.
 2. Verify location and sizes of utility rough-in associated with work of this section.
- B. Commencement of Work constitutes acceptance of conditions and substrates by installer.

3.2 INSTALLATION

- A. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.
- B. Use fixture attachments in concealed locations for wall mounted components.
- C. Use concealed joint fasteners to align and secure adjoining cabinet units.
- D. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch.
 1. Do not use additional overlay trim for this purpose.
- E. Secure cabinets to floor using appropriate angles and anchorages.

3.3 ADJUSTING, CLEANING AND PROTECTION

- A. Remove packaging and construction debris and legally dispose of off-site.
- B. Clean up installation area and sweep, dust or wipe material to remove any dirt, dust or debris.
- C. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning recommendations and comply with their documented instructions.
- D. Repair or replace defaced or damaged finishes caused by work of this section.
- E. Adjust moving or operating parts to function smoothly and correctly.
- F. Clean casework, counters, shelves, hardware, fittings, and fixtures.

END OF SECTION 064100

SECTION 068316 - FIBERGLASS REINFORCED PANELING

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Drawings and General Provisions of the Contract (including General and Supplementary Conditions and Division 01 sections) apply to the work of this section.
 - 2. Section Includes:
 - a. Prefinished polyester fiberglass reinforced panels (FRP), adhered to wallboard.
 - b. FRP accessories.

1.2 RELATED SECTIONS

- A. Section 092216 - Non-Structural Metal Framing.
- B. Section 092900 - Gypsum Board.
- C. Section 079200 - Joint Sealants.
- D. Section 096500 - Resilient Flooring and Base.
- E. Section 099000 - Painting and Coating.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's data to indicate compliance with these specifications, including:
 - 1. Storage, handling and preparation instructions and recommendations.
 - 2. Installation instructions.
- B. Shop Drawings: Submit elevations of each wall showing location of paneling and trim members with respect to all discontinuities in the wall elevation.
- C. Selection Samples: Submit manufacturer's standard color pattern selection samples representing manufacturer's full range of available colors and patterns.
- D. Samples for Verification: Submit appropriate section of panel for each finish selected indicating the color, texture, and pattern required.
 - 1. Submit complete with specified applied finish.
 - 2. For selected patterns show complete pattern repeat.

3. Exposed Trim Molding: Provide samples of each type, finish, and color.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data:
 1. Submit manufacturer's care and maintenance data, including repair and cleaning instructions. Include in Project closeout documents.

1.5 QUALITY ASSURANCE

- A. Obtain all components, including accessories, to provide a complete installed system, by a single manufacturer and from a single source.
- B. Installer Qualification: Provide work of this Section executed by experienced installers with minimum 5 years experience in the application of Products, systems and assemblies specified, and with approval and training of the Product manufacturers.
- C. Mock-Up:
 1. Prior to final approval of Shop Drawings, erect 1 full size mock-up of each component at Project site demonstrating quality of materials and execution for Architect review.
 2. Should mock-up not be approved, rework or remake until approval is secured.
 - a. Remove rejected units from Project site.
 - b. Approved mock-up shall be used as standard for acceptance of subsequent work.
 3. Approved mock-ups may remain as part of finished work.
- D. Conform to building code requirements for interior finish for smoke and flame spread requirements as tested in accordance with ASTM E 84.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Acceptance Requirements: Deliver no components to Project site until areas are ready for installation.
 1. Deliver to site in manufacturer's original packaging.
- B. Storage and Handling Requirements:
 1. Store panels and trim lying flat, indoors and protected from the elements. Allow panels and adhesive to acclimate to room temperature (range of 60 to 75°F) for 48 hours prior to installation.
 2. Handle materials to prevent damage to finished surfaces.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Building are to be fully enclosed prior to installation with heat (70° or similar room temperature) and ventilation consistent with good working conditions for finish work.
- B. During installation and for not less than 48 hours before, maintain an ambient temperature and relative humidity within limits required by type of adhesive used and recommendation of adhesive manufacturer.
- C. Provide ventilation to disperse fumes during application of adhesive as recommended by the adhesive manufacturer.

1.8 WARRANTY

- 1. Manufacturer Warranty: Furnish one-year guarantee against defects in material. Promptly correct any material defects or deficiencies, which become apparent within warranty period, to satisfaction of Architect and at no expense to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Manufacturer: Subject to compliance with requirements, provide products by Marlite Inc.
 - 1. Refer to Architectural finish plan, schedules, and details for color, finish, texture, and additional requirements.
 - a. Product: Symmetrix SmartSeam FRP Panels with Sani-coat Sealer.
- B. Other manufacturers offering acceptable products may include, but are not limited to:
 - 1. Fiber-Tech Industries.
 - 2. Substitutions: Submit in accordance with Division 01.

2.2 MATERIALS

- A. Fiberglass reinforced thermosetting polyester resin panel sheets complying with ASTM D 5319.
- B. Dimensions:
 - 1. Thickness – 0.090" (2.29mm) nominal
 - 2. Width - 4'-0" (1.22m) nominal
 - 3. Length – 8'-0" (2.4m) nominal
- C. Tolerance:
 - 1. Length and Width: +/-1/8" (3.175mm)

2. Square - Not to exceed 1/8" for 8' (2.4m) panels.

2.3 MATERIAL CHARACTERISTICS

- A. Performance requirements:
 1. Resistant to rot, corrosion, denting, peeling, and splintering.
 2. Flexural Strength – 0.9×10^4 psi per ASTM D 790.
 3. Flexural Modulus – 6.0×10^6 psi per ASTM D 790.
 4. Tensile Strength – 11.5×10^3 psi per ASTM D 638.
 5. Tensile Modulus – 0.45×10^6 psi per ASTM D 638.
 6. Barcol Hardness (scratch resistance) – 28 per ASTM D 2583.
 7. Izod Impact Strength – 6.0 ft. lbs./in ASTM D 256
 8. Thermal Coefficient of Lineal Expansion – 2.22×10^{-5} in/in/F per ASTM D 696
 9. Water Absorption – 0.15% per ASTM D 570.
 10. Specific Gravity – 1.8 per ASTM D 792.
 11. Cross-cut Adhesion – 0 removed per ASTM D 3359
 12. Mold & Mildew – Pass per ASTM D 3273.
 13. Standard Specification for FRP Wall Panels – per ASTM D 5319
 14. Standard Test Method Surface Burning Characteristics of Building Materials – Class C per ASTM E 84.
- B. Back Surface: Smooth.
 1. Imperfections which do not affect functional properties shall not be cause for rejection.
- C. Front Finish: As indicated on Architectural finish schedule.
- D. Color: As indicated on Architectural finish schedule.

2.4 ACCESSORIES

- A. Base:
 1. Basis-of-Design: Marlite Base Molding for 0.090" (2.29mm) thick FRP Panels
 - a. Color and profile: As indicated on Architectural finish schedule.
- B. Trim Molding:
 1. PVC Trim: Thin-wall semi-rigid extruded PVC.
 - a. Color: To match FRP panels, unless indicated otherwise on Architectural finish schedule
- C. Adhesive: Complying with ASTM C 557.

1. Basis-of Design: Marlite C-109 Low VOC Cartridge Adhesive for interlocking SmartSeam Panels
- D. Sealant:
 1. Basis-of Design: Marlite Brand MS-250 Clear Silicone Sealant.

PART 3 - EXECUTION

3.1 GENERAL

- A. Comply with manufacturer's product data, including technical bulletins, product catalog, installation instructions, and product carton instructions for installation and maintenance procedures.

3.2 EXAMINATION

- A. Verification of Conditions:
 1. Examine substrates and conditions, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
 - a. Examine substrate wall to determine that corners are plumb and straight, surfaces are smooth, uniform, clean and free from foreign matter, nails countersunk, joints and cracks filled flush and smooth with the adjoining surface.
 - b. Verify that stud spacing does not exceed 24" (61cm) on-center.
 - c. Level wall surfaces to panel manufacturer's requirements. Remove protrusions and fill indentations.
 2. Verify actual site dimensions and location of adjacent materials prior to commencing work.
 3. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Evaluation and Assessment: Commencement of work constitutes acceptance of previously completed work.

3.3 INSTALLATION

- A. Comply with manufacturer's recommended procedures and installation sequence.
- B. Cut panels to meet supports allowing 1/8" (3 mm) clearance for every 8 foot (2.4m) of panel.
 1. Cut and drill with carbide tipped saw blades or drill bits, or cut with shears.

- C. Apply panels to board substrate, above base, vertically oriented with seams plumb and pattern aligned with adjoining panels.
- D. Install panels with manufacturer's recommended gap for panel field and corner joints.
- E. Adhesive trowel and application method to conform to adhesive manufacturer's recommendations.
- F. For interlocking panels (non-continuous vertical joints, i.e. subway groove configuration), apply low VOC adhesive using swirl technique at jagged panel edges.
- G. Apply panel moldings to all panel edges using silicone sealant providing for required clearances.
 - 1. All moldings must provide for a minimum 1/8" (3mm) of panel expansion at joints and edges, to insure proper installation.
 - 2. Apply sealant to all moldings, channels and joints between the system and different materials to assure watertight installation.

3.4 REPAIR, CLEANING AND PROTECTION

- A. Remove packaging and construction debris and legally dispose of off-site.
- B. Non-Conforming Work: Replace damaged work which cannot be satisfactorily repaired, restored or cleaned, to satisfaction of Architect at no cost to Owner.
- C. Remove excess sealant from panels and moldings. Wipe panel down using a damp cloth and mild soap solution or cleaner.
- D. Refer to manufacturer's specific cleaning recommendations.
 - 1. Do not use abrasive cleaners.
- E. Protect surfaces from damage until date of Substantial Completion of the Work.

END OF SECTION 068316

SECTION 075100 - BUILT-UP ASPHALT ROOFING

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Asphalt built-up roof membrane.
- B. Membrane flashings and accessories.

1.2 SUBMITTALS

- A. See Division 01 for submittal procedures.
- B. Prior to pre-roofing meeting, submit the following:
- C. Manufacturer's Certification: Letter from manufacturer, on letterhead, and signed by authorized representative, stating:
 - 1. Materials and components conform to specification requirements and that materials furnished are compatible.
- D. Roof membrane system, membrane flashings, and roof insulation, qualifies for specified warranty.
- E. Installer is authorized to install manufacturer's warranty roof systems and was approved a minimum of 5 years prior to the Project NTP.
- F. Roof system meets specified regulatory requirements
 - 1. Sample manufacturer, and installer, warranties, meeting and Specification requirements
 - 2. Product Literature: Submit product literature on roof system and accessory components
 - 3. Manufacturer's cold weather application recommendations
- G. Shop drawings
 - 1. Roof Protection Plan: Submit written roof protection plan for A/E and Owner approval that describes type and layout of roof protection during construction activities on or above roof area.
 - 2. Pre-Roofing Meeting Notes: Submit Pre-Roofing Meeting Notes within 5 business days of meeting date.
 - 3. Manufacturer's Field Reports: Submit copies of manufacturer's field reports to A/E and/or the Project Manager during the work, and at final completion.

4. Asphalt Fume Control Plan: Submit equipment data, and proposed loading and heating procedures to limit ground-level asphalt fumes.
5. Shop drawings: Submit shop drawings for approval prior to PreRoofing Conference and start of work.
6. Include the following drawings:
 - a). Roof Plan(s):
 - 1). Prepare scaled roof plan locating roof details and penetrations.
 - 2). Include on roof plan tapered insulation locations at field, perimeter, and roof curbs. Indicate insulation thickness at high and low points, crickets' pattern, and drain sumps.
 - 3). Outline roof dimensions, including all levels.
 - b). Location and type of penetrations. Illustrate perimeter flashings, equipment flashings and penetrations flashing. Scale details at 1" = 1' 0" minimum or larger. Manufacturer's standard pre- printed details are not acceptable for shop drawings.
 - 1). Indicate deck type on each drawing.
 - c). Provide scaled insulation attachment plan for each roof area indicating perimeter and corner requirements to achieve specified wind uplift resistance. Provide insulation fastening pattern drawing for corner, perimeter, and field zones.
 - d). Indicate location of proposed staging areas and material storage on site plan.
7. Product data:
 - a). Roofing membrane products: Submit manufacturer's data sheets for each product being installed.
Include manufacturer's installation instructions.
 - b). Insulation products: Submit manufacturer's data sheets for each component required including insulation boards, adhesives, fasteners, plates and bitumen or adhesive. Provide roofing system manufacturer's written acceptance of proposed insulation board, adhesives, fasteners, and procedures for installation.
 - c). Laboratory Testing: Provide evidence of specified fire and wind uplift ratings for proposed roof system.

8. Surfacing Sample: Submit approximately 2 lb. sample of roof membrane surfacing in metal container.
 9. Roof Maintenance Data: Submit manufacturer's complete recommended maintenance procedures for roofing system, including precautions and warnings to prevent damage and deterioration to the roofing system. Information shall include maintenance guidelines indicating materials and methods to be used for emergency and minor repairs.
- H. Qualifications
1. Installer: Company specializing in performing the work of this Section and approved by roof manufacturer for installation of specified roof system.
 2. Minimum 5 years documented successful experience with asphalt built-up roofing.
- I. Regulatory Requirements
1. Fire Resistance:
 - a). UL Class A Fire Hazard Classification
 2. Wind Uplift Resistance: Design and certify that asphalt built-up roofing meets wind uplift loads as shown on Structural Drawings.

1.3 TOLERANCES

- A. Comply with tolerances listed in this Section.
- B. Where tolerances are not expressly stated in these Specifications, or by the manufacturer, perform work within tolerances specified in the NRCA Roofing and Waterproofing Manual.

1.4 PRE-ROOFING CONFERENCE

- A. Schedule meeting to discuss roof Work before start of work onsite. Notify attending parties prior to commencing work of this Section.
- B. Pre-roofing conference attendees shall include the Owner's Representative, A/E, A/E's roofing consultant, General Contractor representatives, roofing subcontractor project manager and superintendent/foreman, related subcontractors and roof manufacturer's technical representative.

- C. Review Specifications, Submittals, installation procedures and coordination required with related Work.

Agenda shall include:

1. Schedule of daily roofing operations and daily production anticipated.

2. Designation of key personnel and their respective responsibilities.
3. Review of staging and material storage locations.
4. Coordination of work with other trades.
5. Emergency rain protection procedures.
6. Protection of completed roofing and Roof Protection Plan.
7. Manufacturer's scheduled inspections and acceptance procedures.
8. Warranty period process for leak repairs and inspections.
9. Review Fume Control Plan.
10. Keep meeting notes and provide copies to those in attendance according to submittal requirements.

D. Delivery, Storage, and Handling

1. Deliver, store, and handle products according to manufacturer's recommendations.
2. Deliver products in original containers, dry, undamaged, with seals and labels intact.
3. Storage:
 - a). Roof-top storage of weather-sensitive material is not permitted. Material stored overnight on roof-top will be considered defective.
 - b). Note – Select 1 from the following statements and delete others: if site conditions allow storage trailers onsite use the following. Store weather-sensitive products in enclosed storage trailers.
 - c). Weather-sensitive products on pallets, clear of ground, and cover with secure breathable canvas tarps. Or if site conditions do not allow site storage, store weather-sensitive products in an enclosed warehouse, or in storage trailers off-site. Deliver products in quantity that can be used each day, without roof-top storage. Products must be returned to warehouse, or storage trailer, each day.
 - d). Store rolled goods on end. Do not use rolls with damaged ends. Cut and remove portion of roll damaged, and use undamaged portion for strip-in ply, or completely remove roll from site.
4. Store related materials within temperature ranges recommended by the manufacturer(s) of each product.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Comply with manufacturer's environmental requirements for storage and application of products.
- B. Verify existing and forecasted weather conditions and determine when conditions are acceptable for roof work within the guidelines as follows:
 - 1. Do not proceed with work when ambient air temperature falls below 40° F.
 - 2. Do not proceed with roof application when excessive moisture is present.
Excessive moisture is that which may be detected by sight or touch, or that which results in visible foaming of hot asphalt.
 - 3. Do not expose materials sensitive to water, or sunlight, damage in quantities greater than can be weatherproofed during each day.

1.6 COORDINATION

- A. Coordinate work with installation of associated metal flashings as the work of this Section proceeds.
- B. Inspection by Manufacturer:
 - 1. Coordinate inspection of the work, by an authorized technical representative of the roof system manufacturer.
 - a). Manufacturer is required to inspect work a minimum of 3 visits per Project.
 - b). Manufacturer's visits to consist of:
 - 1). Attendance to Pre-Roofing Meeting.
 - 2). One visit at Project commencement.
 - 3). Interim visits for each 10 work days of roof work, and one visit at Project completion.
 - 2. Provide manufacturer's field inspection reports within 5 days of each site visit.

1.7 ROOF SYSTEM WARRANTY

- A. Provide manufacturer's 20 year, no penal sum limit, and roof system warranty.
- B. Warranty shall include all material and labor costs.
- C. Warranty shall include coverage for roof insulation, as specified in Section 07 22 16, either as part of original warranty language, or by attachment. Manufacturer's warranty shall include the full roofing system including membranes, flashings, insulation, fasteners/adhesives, rigid roof boards, accessories and all related roof system components.

- D. Warranty shall be issued on the manufacturer's form as submitted by Contractor and reviewed by A/E and the Owner.
- E. If special maintenance of the roof is required by the manufacturer during the Warranty term(s), such requirements shall be provided to the Owner with the Warranty.

1.8 INSTALLER WARRANTY

- A. Roof Installer Warranty: Provide under provisions of Division 01.
- B. Warranty shall be issued on form submitted, and reviewed, prior to work commencement.
- C. Installer Warranty to be co-signed by General Contractor.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Roof System: Roof deck, insulation, four plies fiberglass felt set in hot asphalt, with gravel aggregate surfacing.
- B. Provide roof membrane, and membrane base flashing materials from single manufacturer.
- C. Obtain written approval from roof membrane manufacturer for use of products incorporated into roof system, which are not supplied by roof membrane manufacturer.
- D. Substitutions:
 - 1. Where specific products are listed in this Specification, the referenced roofing manufacturer's systems are to establish a level of quality.
 - 2. Requests for substitutions to listed products shall be submitted during the bidding phase per requirements of Division 01.
 - 3. Consideration of requests for substitution is at the sole discretion of the A/E and Owner, and approvals shall be issued in writing by the A/E with Owner concurrence.

2.2 ROOF MEMBRANE & BASE FLASHING

- A. Membrane Ply Sheet: ASTM D2178, Type VI premium fiberglass ply sheet.
- B. Membrane Base Flashing: strip-in ply is required, regardless of roof membrane manufacturer minimum requirements, with modified bitumen membrane base flashing sheet top ply.
 - 1. Strip-In Ply: meet, or exceed, roof membrane ply sheet requirements.

2. Second Ply: ASTM D 6221, polyester or glass reinforced, modified bitumen sheet, meeting roof warranty requirements.

C. Metal Flashing Strip-In Ply: meet, or exceed, roof membrane ply sheet requirements.

2.3 BITUMINOUS MATERIALS

A. Asphalt Bitumen: ASTM D312, Type III, steep, as supplied or specifically approved by membrane manufacturer.

B. Asphalt Primer: ASTM D41, as supplied or specifically approved by membrane manufacturer.

C. Cold Adhesive: Type supplied by, or specifically recommended by roof membrane manufacturer, meeting requirements of warranty.

D. Plastic Cement: ASTM D4586, non-asbestos reinforced, as supplied and recommended by roof membrane manufacturer.

2.4 INSULATION

A. Tapered Crickets:

1. First course: ASTM C728, perlite tapered edge, minimum 12" wide, in thickness to match butt edge of tapered insulation, set in hot asphalt.

2. Remaining courses: ASTM C728, perlite, 1/2" per foot tapered, set in hot asphalt.

2.5 TAPERED EDGE & CANTS

A. Tapered Edge: ASTM C728, perlite.

B. Cant Strip: ASTM C728, perlite minimum 3 1/2" face.

C. Wood Cant: Treated southern pine, cut to size.

2.6 SURFACING AND ACCESSORIES

A. Gravel Surfacing: ASTM D1863, light-color, clean, washed, opaque, gravel aggregate.

B. Membrane Flashing Fasteners: Hot-dipped galvanized Simplex cap nails, with minimum 15/16" wide head.

C. Sheet metal flashings: As required.

D. Membrane Edge Sealant: As required by membrane roof manufacturer.

E. Mineral Granules: As supplied by membrane manufacturer to match color of membrane base flashing sheet surface.

F. Traffic Pad: As supplied by membrane manufacturer, and meeting their warranty requirements.

2.7 SPECIAL BITUMEN HEATING EQUIPMENT

- A. Provide ground-level filtering, or after-burning asphalt fume system equipment.
- B. Equip kettle with carton loader device.
- C. Ensure positive seals at kettle lid, loader, and piping, to ensure containment of ground-level asphalt fumes.

PART 3 – EXECUTION

3.1 GENERAL

- A. Work of this Section shall be performed in accordance with quality workmanship standards as defined by NRCA. Detailing shall be performed in accordance with standards as defined by NRCA and SMACNA.
- B. The roof systems manufacturer's technical specifications shall be considered a part of this specification and shall be used as a minimum standard in conjunction with this specification. If this Specification conflicts with, or exceeds manufacturer's minimum requirements the more rigid standard shall apply and be enforced.

3.2 COORDINATION

- A. Ensure proper sequencing of roofing and to allow installation of roof and flashings as detailed, without damage.
- B. Coordinate activities to prevent damage to roof assemblies.

3.3 EXAMINATION & PREPARATION

- A. Do not store, stage activities, or allow construction traffic over roof areas, unless protection plan is approved in advance by A/E or the Owner.
- B. Contractor is responsible for maintaining roof in good condition, and shall restore to manufacturer's warrantable state upon completion of activities.
- C. Verify that surfaces and site conditions are ready to receive work. Verify that debris has been completely removed from roof area and broom clean the deck immediately prior to roofing application.
- D. Verify deck is sound, smooth, and dry enough for covering with roofing. Report decking not serviceable for covering with roof system.
- E. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, and wood components are in place.
- F. Install nailers and blocking immediately prior to application of roofing. Do not cut nailers in after membrane application.

- G. Construct and install nailers and blocking under provisions of Division 06.
- H. Re-roofing: Do not remove more existing roofing than can be re-roofed in a shift.

3.4 TEMPORARY WATERPROOFING

- A. Provide water stops and temporary tie-ins daily to prevent moisture penetration into building interior or installed assemblies.
- B. Seal roofing temporarily to the deck where leakage could penetrate installed assemblies. Remove upon resumption of work.
- C. Provide permanent, or temporary, counter flashing daily.
- D. Install membrane assemblies complete with strip-in plies each day. Use mastic seals only in such a manner that mastic does not remain between finished roof plies at cant strips and membrane terminations. Provide seal at all terminations, both vertical and horizontal.
- E. Provide temporary seals which do not soil finished work surfaces or contaminate surfaces intended to receive sealants.
- F. Remove temporary seals from completed work.

3.5 CANT STRIP APPLICATION

- A. Apply fiber cant strip into solid mopping of asphalt, and step-in completely.
- B. Install wood cant at throughwall scupper intersections and to support vertical "L" nailers.
- C. Securely fasten wood cant to substrate. Ensure smooth transitions with fiber cant.
- D. Make straight, neat cuts and miter corners without perceptible gaps or open joints.
- E. Cut, shave, modify and combine various sized tapered materials to provide smooth, uniform transitions.

3.6 BITUMEN HEATING

- A. Comply with manufacturer's requirements for heating, and applying bitumen.
- B. Heat asphalt bitumen to achieve EVT at point of application, as stamped on asphalt carton, plus or minus 25° F.
- C. Use insulated tubing and luggers during cold weather, to maintain correct temperature, at the point of application.
- D. Verify accurate temperature readings at point of application to ensure compliance. Establish proper temperature at kettle, hold time on roof, and substrate type and temperature to achieve proper application temperature.

- E. Measure temperature periodically, minimum one reading every two hours or when conditions change. Contractor will provide accurate temperature measuring device for verification.
- F. Adjust temperature, equipment, or procedure to maintain proper application temperature.
- G. Do not heat bitumen above finished blowing temperature for more than 3 hours, unless bitumen is under continuous use.
- H. Provide fume control equipment to minimize asphalt fumes during the work. Comply with fume control requirements of this Specification and submitted Fume Control Plan.

3.7 APPLICATION IN COLD WEATHER

- A. Comply with manufacturer's special recommendations for membrane application during cold weather.
- B. Discontinue installation if asphalt temperature cannot be maintained at EVT at point of application.
- C. Pre-heat adhesive and store to allow proper application temperatures.

3.8 ROOF INSULATION APPLICATION

- A. Only install insulation that can be covered with watertight roof membrane the same day.
- B. Protect installed insulation from damage, and moisture.

3.9 TAPERED CRICKET APPLICATION

- A. Commence cricket installation at edge of drain and scupper sumps.
- B. Establish straight, uniform, cricket valley.
- C. Set tapered edge strip along valley line, in full bed of hot asphalt.
- D. Butt first layer of tapered insulation to thick edge of tapered edge, and set in full bed of hot asphalt.
- E. Install remaining layers of tapered fill insulation to achieve uniform, positive slope.
- F. Step-in each board, while asphalt is still molten, to ensure good embedment.

3.10 ROOF MEMBRANE APPLICATION

- A. Coordinate activities so foot traffic does not occur on or across plies while bitumen is fluid.
- B. Use only hand-mopping, or bitumen dispensers that do not displace bitumen between roof plies.

- C. Install one additional layer of ply felt at valleys, hips, and ridges, minimum 12" wide, set in hot asphalt.
- D. Begin at the lowest point of the roof.
- E. Apply plies together in shingle fashion without phasing.
- F. Apply and lap felts in accordance with membrane product manufacturer's recommendations, to obtain minimum 4-shingled plies, regardless of membrane manufacturer's minimum roof warranty requirements.
- G. Apply felts straight, without buckles or voids, and broom lightly as necessary to result in full embedment without voids.
- H. Extend plies to the top edge of cants or to the point required by the membrane products manufacturer.
- I. Do not place items on installed membranes which could cause displacement of inter ply bitumen.
- J. Protect installed membranes.
 - 1. Repair voids, wrinkles, and other defects, daily to prevent water from entering roof system.
 - 2. Install metal flashings.

3.11 ROOF DRAIN INSTALLATION

- A. Install tapered insulation sump. Ensure smooth transition at roof drain. Readjust insulation, or roof drain elevation to obtain smooth transition.
- B. Extend membrane plies onto drain bowl flange. Cut felts off and dress cut edge of membrane with roof cement.
- C. Brush both sides of the lead drain flashing with a wire brush to remove wax and score surfaces. Prime both sides, and allow drying thoroughly.
- D. Set the lead flashing in a solid bed of roof cement and apply 3 strip-in plies in roof cement. Extend the flashing onto the drain bowl flange.
- E. Install clamp ring. Allow clamp ring to seat for several days and retighten at least once.
- F. Install a stainless steel gravel stop around drains, 30" square. Set the primed gravel stop flange in a bed of roof cement and strip-in with three plies glass felt and roof cement.
- G. Apply bitumen flood coat and embed gravel to outer edge of gravel stop.

- H. Coat exposed felts between gravel stop flange and roof drain with heavy-body aluminum coating.

3.12 APPLICATION OF MEMBRANE FLASHING

- A. Apply in accordance with manufacturer's recommendations.
- B. Install base sheet over nailable surfaces. Fasten base sheet according to manufacturer's recommendations.
- C. Prime roof and masonry surfaces to receive flashing sheet, allow primer to dry completely.
- D. Comply with manufacture's high base flashing application instructions and materials where base flashing exceeds maximum standard height recommended by manufacturer.
- E. Apply first ply membrane flashing sheets in maximum 5' lengths, set in cold adhesive or hot asphalt. Ensure full embedment of membrane flashing.
- F. Set top ply over first ply. Set in asphalt, cold adhesive, or heat weld, ensuring good embedment. Install in width of sheet with selvage edge. Cut, remove, and repair voids and other defects.
- G. Cut, miter, and wrap around corners with no loose tails or large flaps.
- H. Fasten top edge according to manufacturer's recommendations.
- I. Apply neatly and provide uniform, symmetrical appearance.
- J. Fasten top edge minimum 6" on center with nails, or screws, driven through minimum 1" diameter metal caps, or cap nails.

3.13 INSTALLATION OF SOIL PIPE FLASHINGS

- A. Clean roof flange and apply asphalt primer to topside and underside, and allow drying.
- B. Embed roof flange in solid bed plastic cement over fiberglass roof membrane, apply strip-in ply. Fold flashing into top of pipe.
- C. Strip-in roof flange with three strip-in plies set in hot asphalt or plastic cement.

3.14 MEMBRANE SURFACING

- A. Load and spread gravel using methods that do not damage the membrane. Keep loose gravel swept clean in non-surfaced areas.
- B. Obtain membrane manufacturer's approval of installed membrane before applying gravel.
- C. Apply bitumen at the membrane manufacturer's recommended rate.

- D. While bitumen is still hot, apply gravel at the approximate rate of 400 lbs. per square, embedding not less than 200 lbs. per square in asphalt flood coat. Broadcast additional surfacing material to completely cover exposed asphalt flood coat.
- E. Provide a finished appearance free of uneven or ridged areas. Broom or rake gravel to provide a smooth, uniform surface.
- F. Install roof pads according to recommendations of membrane manufacturer.
- G. Install around roof-mounted equipment that is greater than 3' wide, and at foot and top of roof access ladder(s) and roof hatch(s).
- H. Install roof pads underneath lightning protection cable over roof membrane.

3.15 CLEANING

- A. Clean roof surfaces, metal flashings, walls, windows, walks, etc. which become soiled or discolored due to the Work of this Section.
- B. Utilize cleaning agents and procedures which are approved by manufacturer.

3.16 PROTECTION

- A. Comply with submitted Roof Protection Plan.
- B. Protect roof system from damage. Repair or remove and replace damaged roof membrane according to methods approved by roof manufacturer and A/E. A/E and Owner's decision on corrective procedure will be final.
- C. Repair minor scars, cuts, scraps, tears, using methods approved by manufacturer. Severe roof damage will be corrected by removal and replacement with new roof membrane and insulation.
- D. Ensure roof warranty is not voided due to membrane damage.

END OF SECTION 075100

SECTION 078400 - FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes:
 - 1. Firestopping of all joints and penetrations in fire resistance rated and smoke resistant assemblies, whether indicated on drawings or not, and other openings indicated.

1.3 RELATED REQUIREMENTS

- A. Section 092216 - Gypsum Board Assemblies.

1.4 SUBMITTALS

- A. Submit under provisions of 013300 - Submittal Procedures.
- B. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, and firestopping test or design number.
- C. Product Data: Provide data on product characteristics, performance ratings, and limitations.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Installer Qualification: Submit qualification statements for installing mechanics.

1.5 QUALITY ASSURANCE

- A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.
 - 1. Listing in UL (FRD), FM (AG), or ITS (DIR) will be considered as constituting an acceptable test report.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section and:
 - 1. Verification of at least five satisfactorily completed projects of comparable size and type.

1.6 FIELD CONDITIONS

- A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation; maintain minimum temperature before, during, and for three days after installation of materials.
- B. Provide ventilation in areas where solvent-cured materials are being installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Firestopping Manufacturers:
 - 1. 3M Fire Protection Products: www.3m.com/firestop/.
 - 2. Hilti, Inc: www.us.hilti.com/.
 - 3. Specified Technologies Inc: www.stifirestop.com/.
 - 4. Tremco Commercial Sealants & Waterproofing; TREMstop Acrylic: www.tremcosealants.com/.

2.2 MATERIALS

- A. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Provide type of materials as required for tested firestopping assembly.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that project conditions and substrates are acceptable, to the installer, to begin installation of work of this section.
- B. Commencement of Work constitutes acceptance of conditions and substrates by installer.

3.2 PREPARATION

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other materials that could adversely affect bond of firestopping material.
- B. Remove incompatible materials that could adversely affect bond.

3.3 INSTALLATION

- A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.

3.4 CLEANING AND PROTECTION

- A. Remove packaging and construction debris and legally dispose of off-site.

- B. Clean up installation area and sweep, dust or wipe material to remove any dirt, dust or debris.
- C. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning recommendations and comply with their documented instructions.
- D. Repair or replace defaced or damaged finishes caused by work of this section.
- E. Protect finished work from construction activities until time of Substantial Completion.

END OF SECTION 078400

SECTION 078413 - PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Penetration firestopping systems for the following applications:
 - a. Penetrations in fire-resistance-rated walls.
 - b. Penetrations in horizontal assemblies.
 - c. Penetrations in smoke barriers.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 SUBMITTALS

- A. Product Data: For each type of product.
- B. Product Schedule: For each penetration firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing and inspecting agency.
 - 1. Engineering Judgments: Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular penetration firestopping system, submit illustration, with modifications marked, approved by penetration firestopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly. Obtain approval of authorities having jurisdiction prior to submittal.
- C. Qualification Data: For Installer.
- D. Product Test Reports: For each penetration firestopping system, for tests performed by a qualified testing agency.

1.5 CLOSEOUT SUBMITTALS

- A. Installer Certificates: From Installer indicating that penetration firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A firm that has been approved by FM Approval according to FM Approval 4991, "Approval Standard for Firestop Contractors," or been evaluated by UL and found to comply with its "Qualified Firestop Contractor Program Requirements."

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install penetration firestopping system when ambient or substrate temperatures are outside limits permitted by penetration firestopping system manufacturers or when substrates are wet because of rain, frost, condensation, or other causes.
- B. Install and cure penetration firestopping materials per manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

1.8 COORDINATION

- A. Coordinate construction of openings and penetrating items to ensure that penetration firestopping systems can be installed according to specified firestopping system design.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping systems.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics:
 - 1. Perform penetration firestopping system tests by a qualified testing agency acceptable to authorities having jurisdiction.
 - 2. Test per testing standards referenced in "Penetration Firestopping Systems" Article. Provide rated systems complying with the following requirements:
 - a. Penetration firestopping systems shall bear classification marking of a qualified testing agency.

- 1) UL in its "Fire Resistance Directory."
- 2) Intertek Group in its "Directory of Listed Building Products."
- 3) FM Approval in its "Approval Guide."

2.2 PENETRATION FIRESTOPPING SYSTEMS

- A. Penetration Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.
 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. 3M Fire Protection Products.
 - b. A/D Fire Protection Systems Inc.
 - c. Construction Solutions.
 - d. Hilti, Inc.
 - e. NUCO Inc.
 - f. Passive Fire Protection Partners.
 - g. Specified Technologies, Inc.
 - h. Tremco, Inc.
- B. Penetrations in Fire-Resistance-Rated Walls: Penetration firestopping systems with ratings determined per ASTM E814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.
 1. F-Rating: Not less than the fire-resistance rating of constructions penetrated.
- C. Penetrations in Horizontal Assemblies: Penetration firestopping systems with ratings determined per ASTM E814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.
 1. F-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated.
 2. T-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.
 3. W-Rating: Provide penetration firestopping systems showing no evidence of water leakage when tested according to UL 1479.

- D. Penetrations in Smoke Barriers: Penetration firestopping systems with ratings determined per UL 1479, based on testing at a positive pressure differential of 0.30-inch wg.
1. L-Rating: Not exceeding 5.0 cfm/sq. ft. of penetration opening at and no more than 50-cfm cumulative total for any 100 sq. ft. at both ambient and elevated temperatures.
- E. Exposed Penetration Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, per ASTM E84.
1. Sealant shall have a VOC content of 250 g/L or less.
- F. Manufactured Piping Penetration Firestopping System: Penetration firestopping systems with ratings determined per ASTM E814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.
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. ProVent Systems, Inc.
 2. F-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated.
 3. T-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.
 4. W-Rating: Provide penetration firestopping systems showing no evidence of water leakage when tested according to UL 1479.
 5. Sleeve: Molded-PVC plastic, of length to match slab thickness and with integral nailing flange on one end for installation in cast-in-place concrete slabs.
 6. Stack Fitting: ASTM A48/A48M, gray-iron, hubless-pattern wye branch with neoprene O-ring at base and gray-iron plug in thermal-release harness. Include PVC protective cap for plug.
 7. Special Coating: Corrosion resistant on interior of fittings.
- G. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping system manufacturer and approved by qualified testing and inspecting agency for conditions indicated.

1. Permanent forming/damming/backing materials.
2. Substrate primers.
3. Collars.
4. Steel sleeves.

2.3 FILL MATERIALS

- A. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer sleeve lined with an intumescent strip, a flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
- B. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.
- C. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- D. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced intumescent elastomeric sheet bonded to galvanized-steel sheet.
- E. Intumescent Putties: Nonhardening, water-resistant, intumescent putties containing no solvents or inorganic fibers.
- F. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.
- G. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.
- H. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents, and fire-retardant additives. Where exposed, cover openings with steel-reinforcing wire mesh to protect pillows/bags from being easily removed.
- I. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- J. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants.

2.4 MIXING

- A. Penetration Firestopping Materials: For those products requiring mixing before application, comply with penetration firestopping system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning: Before installing penetration firestopping systems, clean out openings immediately to comply with manufacturer's written instructions and with the following requirements:
 - 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping materials.
 - 2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping materials. Remove loose particles remaining from cleaning operation.
 - 3. Remove laitance and form-release agents from concrete.
- B. Prime substrates where recommended in writing by manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

3.3 INSTALLATION

- A. General: Install penetration firestopping systems to comply with manufacturer's written installation instructions and published drawings for products and applications.
- B. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings.

1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not forming permanent components of firestopping.
- C. Install fill materials by proven techniques to produce the following results:
 1. Fill voids and cavities formed by openings, forming materials, accessories and penetrating items to achieve required fire-resistance ratings.
 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
 3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

- A. Wall Identification: Permanently label walls containing penetration firestopping systems with the words "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS," using lettering not less than 3 inches high and with minimum 0.375-inch strokes.
 1. Locate in accessible concealed floor, floor-ceiling, or attic space at 15 feet from end of wall and at intervals not exceeding 30 feet.
- B. Penetration Identification: Identify each penetration firestopping system with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of penetration firestopping system edge so labels are visible to anyone seeking to remove penetrating items or firestopping systems. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:
 1. The words "Warning - Penetration Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
 2. Contractor's name, address, and phone number.
 3. Designation of applicable testing and inspecting agency.
 4. Date of installation.
 5. Manufacturer's name.
 6. Installer's name.

3.5 FIELD QUALITY CONTROL

- A. Engage a qualified testing agency to perform tests and inspections according to ASTM E2174.
- B. Where deficiencies are found or penetration firestopping system is damaged or removed because of testing, repair or replace penetration firestopping system to comply with requirements.
- C. Proceed with enclosing penetration firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

3.6 CLEANING AND PROTECTION

- A. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping system manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated penetration firestopping material and install new materials to produce systems complying with specified requirements.

END OF SECTION 078413

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Drawings and General Provisions of the Contract (including General and Supplementary Conditions and Division 01 sections) apply to the work of this section.
- B. Section Includes:
 - 1. Silicone joint sealants.
 - 2. Urethane joint sealants.
 - 3. Latex joint sealants.

1.2 RELATED SECTIONS

- A. Section 096500 - Resilient Flooring and Base.
- B. Section 092900 - Gypsum Board.
- C. Section 066116 - Solid Surfacing Fabrications.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate installation of joint sealants with cleaning of joint sealant substrates and other operations that may impact installation or finished joint sealant work.
- B. Preinstallation Conference: Conduct conference at Project Site.

1.4 ACTION SUBMITTALS

- 1. Product Data: For each type of joint sealant product specified, including:
 - a. Preparation instructions and recommendations.
 - b. Standard drawings illustrating manufacturer's recommended sealant joint profiles and dimensions applicable to Project.
- 2. Samples for Color Selection: For each joint sealant type.
- 3. Samples for Verification: For each exterior joint sealant product, for each color selected.
- 4. Joint Sealant Schedule: Include application, location, drawing designation, manufacturer and product name, and selected color.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified applicator.
- B. Sealant, Waterproofing, and Restoration Institute (SWRI) Validation Certificate: For each sealant specified to be validated by SWRI's Sealant Validation Program.
- C. Warranty: Sample of unexecuted manufacturer and installer special warranties.
- D. Field quality control adhesion test reports.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Company with minimum of three years experience specializing in work of this section, employing applicators trained for application of joint sealants required for this project, with record of successful completion of projects of similar scope, and approved by manufacturer.
- B. Single Source Responsibility: Provide exterior joint sealants by a single manufacturer responsible for testing of Project substrates to verify compatibility and adhesion of joint sealants.
- C. Preconstruction Manufacturer Laboratory Compatibility, Staining, and Adhesion Testing: Submit samples of each substrate or adjacent material that will be in contact with or affect joint sealants. Current manufacturer test data of products on matching substrates will be acceptable.
 - 1. Pre-construction manufacturer laboratory testing is not required when sealant manufacturer can furnish data acceptable to Architect based on previous testing for materials matching those of the Work.
- D. Adhesion: Use ASTM C719 and ASTM C794 to determine requirements for joint preparation, including cleaning and priming.
- E. Compatibility: Use ASTM C 1087 to determine materials forming joints and adjacent materials do not adversely affect sealant materials and do not affect sealant color.
- F. Stain Testing: Use ASTM C510, ASTM C1248, or ASTM D2203 to verify non-staining characteristics of proposed sealants on specified substrates.
- G. Mockups: Provide joint sealant application within mockups required in other sections identical to specified joint sealants and installation methods.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Accept materials on site in manufacturer's unopened original packaging.

- B. Store primers and sealants in dry location with ambient temperature range of 60 to 80 deg. F (15 to 27 deg. C).

1.8 PROJECT CONDITIONS

- 1. Do not install primers or sealants when atmospheric temperatures or joint surface temperatures are less than 40 deg. F (4 deg. C).

1.9 SCHEDULING

- A. Schedule work so waterproofing, water repellents and preservative finishes are installed after sealants, unless sealant manufacturer approves otherwise in writing.
- B. Ensure sealants are cured before covering with other materials.

1.10 WARRANTY

- 1. Special Manufacturer's Warranty: Manufacturer's standard form in which joint sealant manufacturer agrees to furnish joint sealants to repair or replace those that demonstrate deterioration or adhesive or cohesive failure under normal use within warranty period specified.
 - a. Warranty Period for Silicone Sealants: Five years date of Substantial Completion.
- 2. Special Installer's Warranty: Original statement on Installer's letterhead in which Installer agrees to repair or replace joint sealants that demonstrate deterioration or failure within warranty period specified.
 - a. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Manufacturer: Provide joint sealant products manufactured by Tremco, Inc., Commercial Sealants and Waterproofing.
- B. Other manufacturers offering acceptable products may include, but are not limited to:
 - 1. Dow Chemical.
 - 2. Sika Corporation.
 - 3. BASF.
 - 4. Substitutions: Submit in accordance with Division 01.

2.2 MATERIALS

- A. VOC Content for Interior Applications: Provide sealants and sealant primers complying with the following VOC content limits per 40 CFR 59, Subpart D (EPA Method 24):

1. Architectural Sealants: 250 g/L.
 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 3. Sealant Primers for Porous Substrates: 775 g/L.
- B. Low-Emitting Sealants for Interior Applications: Provide sealants and sealant primers complying with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- C. Compatibility: Provide joint sealants and accessory materials that are compatible with one another, and with adjacent materials, as demonstrated by sealant manufacturer using ASTM C1087 testing and related experience.
- D. Joint Sealant Standard: Comply with ASTM C920 and other specified requirements for each joint sealant.
- E. Stain Test Characteristics: Where sealants are required to be nonstaining, provide sealants tested per ASTM C1248 as non-staining on porous joint substrates specified.

2.3 JOINT SEALANTS

- A. Silicone: Mildew-Resistant, Single-Component, Acid-Curing Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 25, Use NT.
1. Uses: General construction sealant suitable for use where sanitary joints need added protection against fungi and bacteria.
 2. Basis of Design Product: Tremco, Inc., Tremsil 200 Sanitary.
 3. Volatile Organic Compound (VOC) Content: 1 g/L maximum.
 4. Volatile Organic Emissions (VOE): Not greater than Greenguard Children & Schools Certification emissions levels.
 5. Color: White and Clear.
- B. Latex Joint Sealant: Siliconized acrylic latex, ASTM C834, Type OP, Grade NF.
1. Uses: General purpose interior and exterior caulking. Acoustical seals in the construction of interior walls, ceilings and floors.
 2. Basis of Design Product: Tremco, Inc., Tremflex 834.
 3. Volatile Organic Compound (VOC) Content: 35 g/L maximum.
 4. Volatile Organic Emissions (VOE): Not greater than Greenguard Children & Schools Certification emissions levels.
 5. Color: White, paintable.

- C. Butyl-Rubber-Based Joint Sealant: ASTM C1311.
 - 1. Uses: Interior and exterior concealed joints within metal assemblies.
 - 2. Basis of Design Product: Tremco, Inc., Tremco Butyl Sealant.
 - 3. Volatile Organic Compound (VOC) Content: 250 g/L maximum.
 - 4. Color: As selected by Architect from manufacturer's standard colors.
- D. Latex Joint Sealant: Siliconized acrylic latex, ASTM C834, Type OP, Grade NF.
 - 1. Basis of Design Product: Tremco, Inc., Tremflex 834.
 - 2. Volatile Organic Compound (VOC) Content: 35 g/L maximum.
 - 3. Volatile Organic Emissions (VOE): Not greater than Greenguard Children & Schools Certification emissions levels.
 - 4. Color: White, paintable.

2.4 ACCESSORIES

- A. Cylindrical Sealant Backing: ASTM C1330, Type B non-absorbent, bi-cellular material with surface skin, or Type O open-cell polyurethane, as recommended by sealant manufacturer for application.
- B. Bond Breaker Tape: Polymer tape compatible with joint sealant and adjacent materials and recommended by sealant manufacturer.
- C. Joint Substrate Primers: Substrate primer recommended by sealant manufacturer for application.
- D. Cleaners: Chemical cleaners acceptable to joint sealant manufacturer.
- E. Masking tape: Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces.

PART 3 - EXECUTION

3.1 GENERAL

- A. Comply with manufacturer's product data, including technical bulletins, product catalog, installation instructions, and product package instructions for installation and maintenance procedures.

3.2 EXAMINATION

- A. Examine joint profiles and surfaces to determine if work is ready to receive joint sealants. Verify joint dimensions are adequate for development of sealant movement capability. Verify joint surfaces are clean, dry, and adequately cured. Proceed with joint sealant work once conditions meet sealant manufacturer's written recommendations.

3.3 PREPARATION

- A. Joint Surface Cleaning: Clean joints prior to installing joint sealants using materials and methods recommended by sealant manufacturer. Comply with ASTM C1193.
 - 1. Remove curing compounds, laitance, form-release agents, dust, and other contaminants.
 - 2. Clean nonporous and porous surfaces utilizing chemical cleaners acceptable to sealant manufacturer.
 - 3. Protect elements surrounding the Work of this section from damage or disfiguration. Apply masking tape to adjacent surfaces when required to prevent damage to finishes from sealant installation.

3.4 SEALANT APPLICATION

- A. Sealant and Primer Installation Standard: Comply with ASTM C1193 and manufacturer's written instructions.
- B. Joint Backing: Select joint backing materials recommended by sealant manufacturer as compatible with sealant and adjacent materials. Install backing material at depth required to produce profile of joint sealant allowing optimal sealant movement.
 - 1. Install joint backing to maintain the following joint ratios:
 - a. Joints up to 1/2 inch (13 mm) wide: 1:1 width to depth ratio.
 - b. Joints greater than 1/2 inch (13 mm) wide: 2:1 width to depth ratio; maximum 1/2 inch (13 mm) joint depth.
 - 2. Install bond breaker tape over substrates when sealant backings are not used.
- C. Masking: Mask adjacent surfaces to prevent staining or damage by contact with sealant or primer.
- D. Joint Priming: Prime joint substrates when recommended by sealant manufacturer or when indicated by preconstruction testing or experience. Apply recommended primer using sealant manufacturer's recommended application techniques.
- E. Liquid Sealant Application: Install sealants using methods recommended by sealant manufacturer, in depths recommended for application. Apply in continuous operation from bottom to top of joint vertically and horizontally in a single direction. Apply using adequate pressure to fill and seal joint width.
 - 1. Tool sealants immediately with appropriately shaped tool to force sealants against joint backing and joint substrates, eliminating voids and ensuring full contact.

2. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
 3. Tool exposed joint surface concave using tooling agents approved by sealant manufacturer for application.
- F. Cleaning: Remove excess sealant using materials and methods approved by sealant manufacturer that will not damage joint substrate materials.
1. Remove masking tape immediately after tooling joint without disturbing seal.
 2. Remove excess sealant from surfaces while still uncured.
- G. Installation of Acoustical Sealant: At sound-rated assemblies and elsewhere as indicated, seal construction at perimeters, behind control joints, and at openings and penetrations on both sides of assemblies with a continuous bead of acoustical sealant. Comply with ASTM C919 and with manufacturer's written recommendations.

3.5 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Perform adhesion tests in accordance with manufacturer's instructions and with ASTM C1193, Method A.
1. Perform 5 tests for the first 1000 feet (300 m) of joint length for each kind of sealant and joint substrate, and one test for each 1000 feet (300 m) of joint length thereafter or 1 test per each floor per building elevation, minimum.
 2. For sealant applied between dissimilar materials, test both sides of joint.
- B. Remove sealants failing adhesion test, clean substrates, reapply sealants, and re-test. Test adjacent sealants to failed sealants.
- C. Submit report of field adhesion testing to Architect indicating tests, locations, dates, results, and remedial actions taken.

3.6 INTERIOR JOINT SEALANT SCHEDULE

- A. Refer to Part 2 "Joint Sealants" in this specification for products.
1. Interior sanitary joints between plumbing fixtures, food preparation fixtures, and casework and adjacent walls, floors, and counters.
 - a. Joint Sealant: Mildew-Resistant, Single-Component, nonsag, acid-curing silicone joint sealant.
 2. Interior perimeter joints of interior frames.
 - a. Siliconized acrylic latex.
 3. Interior non-moving joints between interior painted surfaces and adjacent materials.

- a. Joint Sealant: Siliconized acrylic latex
- 4. Interior concealed sealants at thresholds and sills.
 - a. Joint Sealant: Butyl-rubber-based joint sealant

3.7 CLEANING AND PROTECTION

- A. Remove packaging and construction debris and legally dispose of off-site.
- B. Remove excess sealant from panels and moldings. Wipe panel down using a damp cloth and mild soap solution or cleaner.
- C. Refer to manufacturer's specific cleaning recommendations Do not use abrasive cleaners.
- D. Protect installed work as recommended by the manufacturer against damage.

END OF SECTION 079200

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

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. Section includes the following:
 - 1. Hollow metal doors and frames.

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.4 COORDINATION

- A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

1.5 SUBMITTALS

- A. Submit under provisions of 013300 - Submittal Procedures.
- B. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, core descriptions, fire-resistance ratings, temperature-rise ratings, and finishes.
- C. Shop Drawings: Include the following:
 - 1. Elevations of each door type.
 - 2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
 - 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
 - 4. Locations of reinforcement and preparations for hardware.
 - 5. Details of each different wall opening condition.

- 6. Details of anchorages, joints, field splices, and connections.
- 7. Details of accessories.
- 8. Details of moldings, removable stops, and glazing.
- 9. Details of conduit and preparations for power, signal, and control systems.
- D. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.
- E. Product Test Reports: For each type of hollow-metal door and frame assembly, for tests performed by a qualified testing agency.
- F. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years of documented experience.
- B. Installer Qualifications: Minimum of 5 years experience with installation of similar products.
- C. Products Required to Comply with Fire Resistance Criteria: UL listed and labeled.
- D. Pre-installation Conference:
 - 1. General contractor shall arrange a meeting not less than two weeks prior to starting work.
 - a. Attendance:
 - 1) General Contractor.
 - 2) Architect/Owner's Representative.
 - 3) Installer's Representative.
 - 4) All other affected installers.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Refer to 016000 - Product Requirements for additional requirements.
- B. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage.
 - 1. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.

2. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
 3. Schedule delivery to minimize time on site for storage of materials, without affecting sequence of construction operations.
 4. Inspect for damage prior to acceptance.
- C. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch- high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

1.8 WARRANTY

- A. Refer to Section 016000 - Product Requirements for additional requirements.
- B. Provide manufacturer's standard warranty, on standard form and executed in Owner's name.

1.9 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with manufacturer's written instructions regarding conditions affecting application.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Ceco Door Products; an Assa Abloy Group company.
 2. Curries Company; an Assa Abloy Group company.
 3. Pearland Industries.
 4. Republic Doors and Frames.
 5. Steelcraft; an Allegion company.
- B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

2.2 REGULATORY REQUIREMENTS

- A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings and temperature-rise limits indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

1. Smoke- and Draft-Control Assemblies: Provide an assembly with gaskets listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.
- B. Fire-Rated, Borrowed-Light Assemblies: Complying with NFPA 80 and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.

2.3 STANDARD HOLLOW METAL DOORS

- A. General: Provide 1-3/4 inch doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8 and ANSI/NAAMM HMMA 867.
- B. Exterior Doors: Face sheets fabricated of commercial quality hot-dipped zinc coated steel that complies with ASTM A924 A60. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model, ANSI/SDI A250.4 for physical performance level, and HMMA 867 for door construction.
 1. Design: Flush panel.
 2. Core Construction: Foamed in place polyurethane and steel stiffened laminated core with no stiffener face welds, in compliance with HMMA 867 "Laminated Core."
 - a. Provide 22 gauge steel stiffeners at 6 inches on-center internally welded at 5" on-center to integral core assembly, foamed in place polyurethane core chemically bonded to all interior surfaces. No stiffener face welding is permitted.
 - b. Thermal-resistance calculated core values U-Factor 0.10, R-value 11.0 (ASTM C518) when tested according to ASTM C 1363.
 3. Level/Model: Level 3 and Physical Performance Level A (Extra-Heavy Duty), Minimum 16 gauge (0.053 inch) thick steel, Model 2.
 4. Vertical Edges: Vertical edges to have the face sheets joined by a continuous weld extending the full height of the door. Welds are to be ground, filled and dressed smooth. Beveled Lock Edge, 1/8 inch in 2 inches
 5. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet. Doors with an inverted top channel to include a steel

closure channel, screw attached, with the web of the channel flush with the face sheets of the door. Plastic or composite channel fillers are not acceptable.

6. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9".
 7. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
- C. Interior Doors: Face sheets fabricated of commercial quality cold rolled steel that complies with ASTM A 1008/A 1008M. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level, and HMMA 867 for door construction.
1. Design: Flush panel.
 2. Core Construction: 22 gauge steel stiffeners at 6 inches on-center internally welded at 5 inches on-center, with sound deadening insulation between stiffeners. No stiffener face welding is permitted.
 - a. Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.
 3. Level/Model: Level 2 and Physical Performance Level A (Heavy Duty), minimum 18 gauge (0.042-inch) thick steel, Model 2.
 4. Vertical Edges: Vertical edges to have the face sheets joined by a continuous weld extending the full height of the door. Welds are to be ground, filled and dressed smooth. Beveled Lock Edge, 1/8 inch in 2 inches.
 5. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet. Doors with an inverted top channel to include a steel closure channel, screw attached, with the web of the channel flush with the face sheets of the door. Plastic or composite channel fillers are not acceptable.
 6. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9" or minimum 14 gauge continuous channel with pierced holes, drilled and tapped.
 7. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.

2.4 STANDARD HOLLOW METAL FRAMES

- A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.

- B. Exterior Frames: Fabricated of hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60.
 - 1. Fabricate frames with mitered or coped corners.
 - 2. Fabricate frames with full profile welded joints.
 - 3. Frames for Steel Doors: Minimum 16 gage (0.053-inch) - thick steel sheet.
- C. Interior Frames: Fabricated from cold-rolled steel sheet that complies with ASTM A 1008/A 1008M.
 - 1. Fabricate frames with mitered or coped corners.
 - 2. Fabricate frames with full profile welded joints.
 - 3. Frames for Steel Doors: Minimum 16 gage (0.053-inch)- thick steel sheet.
 - 4. Frames for Wood Doors: Minimum 16 gage (0.053-inch)- thick steel sheet.
 - 5. Frames for Borrowed Lights: Minimum 16 gage (0.053-inch)- thick steel sheet.
- D. Fire rated frames: Fabricate frames in accordance with NFPA 80, listed and labeled by a qualified testing agency, for fire-protection ratings indicated.
- E. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 Table 4 with reinforcement plates from same material as frames.

2.5 FRAME ANCHORS

- A. Jamb Anchors:
 - 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
 - 2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
 - 3. Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.
 - 4. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch- diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.
- B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:
 - 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

2.6 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
- D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.
 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.
- G. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143/C 143M.
- H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
- I. Install glazing in accordance with requirements in Section 088000 "Glazing."
- J. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.7 FABRICATION

- A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. When shipping

limitations so dictate, frames for large openings are to be fabricated in sections for splicing or splining in the field by others.

B. Tolerances: Fabricate hollow metal work to tolerances indicated in ANSI/SDI A250.8.

C. Hollow Metal Doors:

1. Exterior Doors: Provide optional weep-hole openings in bottom of exterior doors to permit moisture to escape where specified.
2. Glazed Lites: Factory cut openings in doors with applied trim or kits to fit. Factory install glazing where indicated.
3. Astragals: Provide overlapping astragals as noted in door hardware sets in Division 08 Section "Door Hardware" on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted.
4. Continuous Hinge Reinforcement: Provide welded continuous 12 gage straps where continuous hinges are specified in hardware sets in Division 08 Section "Door Hardware".
5. Electrical Raceways: Provide hollow metal doors to receive electrified hardware with concealed wiring harness and standardized Molex plug connectors on both ends to accommodate up to twelve wires. Coordinate connectors on end of the wiring harness to plug directly into the electrified hardware and the through-wire transfer hardware or wiring harness specified in hardware sets in Division 08 Sections "Door Hardware". Wire nut connections are not acceptable.

D. Hollow Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible. Continuously back weld joints at exterior frames.
 - a. Welded frames are to be provided with two steel spreaders temporarily attached to the bottom of both jambs to serve as a brace during shipping and handling. Spreader bars are for bracing only and are not to be used to size the frame opening.

2. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
3. High Frequency Hinge Reinforcement: Provide high frequency hinge reinforcements at door openings 48-inches and wider with mortise/butt type hinges at top hinge locations.
4. Continuous Hinge Reinforcement: Provide welded continuous 12 gage straps for continuous hinges specified in hardware sets in Division 08 Section "Door Hardware."
5. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated for removable stops, provide security screws at exterior locations.
6. Grout Guards: Weld guard boxes to frame at back of hardware mortises in frames at all hinges and strike preps regardless of grouting requirements.
7. Electrical Thru-Wiring: Provide hollow metal frames receiving electrified hardware with loose wiring harness (not attached to open throat components or installed in closed mullion tubes) and standardized Molex plug connectors on one end to accommodate up to twelve wires. Coordinate connectors on end of the wiring harness to plug directly into the electric through-wire transfer hardware or wiring harness specified in hardware sets in Division 08 Sections "Door Hardware".
8. Electrical Knock Out Boxes: Factory weld 18 gage electrical knock out boxes to frame for electrical hardware preps; including but not limited to, electric through wire transfer hardware, electrical raceways and wiring harnesses, door position switches, electric strikes, magnetic locks, and jamb mounted card readers as specified in hardware sets in Division 08 Sections "Door Hardware" and "Access Control Hardware".
 - a. Provide electrical knock out boxes with a dual 1/2-inch and 3/4-inch knockouts.
 - b. Conduit to be coordinated and installed in the field (Division 26) from middle hinge box and strike box to door position box.

- c. Electrical knock out boxes to comply with NFPA requirements and fit electrical door hardware as specified in hardware sets in Division 08 Section "Door Hardware".
 - d. Electrical knock out boxes for continuous hinges should be located in the center of the vertical dimension on the hinge jamb.
- 9. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
- 10. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Masonry Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Two anchors per jamb up to 60 inches high.
 - 2) Three anchors per jamb from 60 to 90 inches high.
 - 3) Four anchors per jamb from 90 to 120 inches high.
 - 4) Four anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.
 - b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Three anchors per jamb up to 60 inches high.
 - 2) Four anchors per jamb from 60 to 90 inches high.
 - 3) Five anchors per jamb from 90 to 96 inches high.
 - 4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
 - 5) Two anchors per head for frames above 42 inches wide and mounted in metal-stud partitions.
 - c. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.
 - d. Severe Storm Shelter Openings: Provide jamb, head, and sill anchors in accordance with manufacturer's tested and approved assemblies.
- 11. Door Silencers: Except on weather-stripped or gasketed doors, drill stops to receive door silencers as follows. Keep holes clear during construction. Silencers to be supplied by frame manufacturer regardless if specified in Division 08 Section "Door Hardware".

- a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- E. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."
 - 1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
 - 2. Reinforce doors and frames to receive nontemplated, mortised and surface-mounted door hardware.
 - 3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
 - 4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 Sections.

2.8 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
 - 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

2.9 ACCESSORIES

- A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.
- B. Grout Guards: Formed from same material as frames, not less than 0.016 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance.
 - 1. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
 - 2. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

1. Commencement of work constitutes acceptance of conditions and substrates by installer.

3.2 PREPARATION

- A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for application.
- B. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- C. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

- A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.
- B. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. At fire-rated openings, install frames according to NFPA 80.
 - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - c. Install frames with removable stops located on secure side of opening.
 - d. Install door silencers in frames before grouting.
 - e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - f. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - g. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
 - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
 4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
 5. Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.
 6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 7. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- C. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Steel Doors:
 - a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
 - b. Between Edges of Pairs of Doors: 1/8 inch to 1/4 inch plus or minus 1/32 inch.
 - c. At Bottom of Door: 5/8 inch plus or minus 1/32 inch.
 - d. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.
 2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

3. Smoke-Control Doors: Install doors and gaskets according to NFPA 105.
- D. Glazing: Comply with installation requirements in Section 088000 "Glazing" and with hollow-metal manufacturer's written instructions.
 1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

3.4 FIELD QUALITY CONTROL

- A. Inspections:
 1. Fire-Rated Door Inspections: Inspect each fire-rated door according to NFPA 80, section 5.2
- 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 assembly installations comply with specified requirements.
- D. Prepare and submit separate inspection report for each fire-rated door assembly indicating compliance with each item listed in NFPA 80.

3.5 ADJUSTING, CLEANING, AND PROTECTION

- A. Remove packaging and construction debris and legally dispose of off-site.
- B. Clean up installation area and sweep, dust or wipe material to remove any dirt, dust or debris.
- C. Repair or replace defaced or damaged finishes caused by work of this section.
- D. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- E. Remove grout and other bonding material from hollow-metal work immediately after installation.

- F. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- G. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- H. Protect finished work from construction activities until time of Substantial Completion.

END OF SECTION 081113

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Five-ply flush wood veneer-faced doors for transparent finish.
 - 2. Five-ply flush wood doors for opaque finish.
 - 3. Solid-core flush wood doors with plastic-laminate-faces.
 - 4. Factory priming flush wood doors and frames.
 - 5. Factory fitting flush wood doors to frames and factory machining for hardware.
- B. Related Requirements:
 - 1. Section 092900 - Gypsum Board.
 - 2. Section 092216 - Non-Structural Metal Framing.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 SUBMITTALS

- A. Product Data: For each type of product, including the following:
 - 1. Door core materials and construction.
 - 2. Door edge construction
 - 3. Door face type and characteristics.
 - 4. Door trim for openings.
 - 5. Door frame construction.
 - 6. Factory-priming specifications.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each type of door; construction details not covered in Product Data; and the following:
 - 1. Door schedule indicating door and frame location, type, size, fire protection rating, and swing.

2. Door elevations, dimension and locations of hardware, lite and louver cutouts, and glazing thicknesses.
 3. Details of 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. Dimensions and locations of blocking for hardware attachment.
 6. Dimensions and locations of mortises and holes for hardware.
 7. Clearances and undercuts.
 8. Requirements for veneer matching.
 9. Doors to be factory finished and application requirements.
 10. Apply AWI Quality Certification Program label to Shop Drawings.
- C. Samples for Initial Selection: For factory-finished doors and factory-finished door frames.
- D. Samples for Verification:
1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish. For each wood species and transparent finish, provide set of three Samples showing typical range of color and grain to be expected in finished Work.
 2. Plastic laminate, 6 inches square, for each color, texture, and pattern selected.
 3. Polymer edging, in manufacturer's standard colors.
 4. Corner sections of doors, approximately 8 by 10 inches, with door faces and edges representing actual materials to be used.
 5. Frames for light openings, 6 inches long, for each material, type, and finish required.
- E. Qualification Data: For door inspector.
1. Fire-Rated Door Inspector: Submit documentation of compliance with NFPA 80, Section 5.2.3.1.
 2. Egress Door Inspector: Submit documentation of compliance with NFPA 101, Section 7.2.1.15.4.
 3. Submit copy of DHI's Fire and Egress Door Assembly Inspector (FDAI) certificate.

- F. Field quality-control reports.
- G. Sample Warranty: For special warranty.
- H. Special warranties.
- I. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- J. Record Documents: For fire-rated doors, list of door numbers and applicable room name and number to which door accesses.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.
- B. Vendor Qualifications: A vendor that is certified for chain of custody by an FSC-accredited certification body.
- C. Manufacturer's Certification: Licensed participant in AWI's Quality Certification Program.
- D. Fire-Rated Door Inspector Qualifications: Inspector for field quality-control inspections of fire-rated door assemblies shall comply with qualifications set forth in NFPA 80, Section 5.2.3.1 and the following:
 - 1. DHI's Fire and Egress Door Assembly Inspector (FDAI) certification.
- E. Egress Door Inspector Qualifications: Inspector for field quality-control inspections of egress door assemblies shall comply with qualifications set forth in NFPA 101, Section 7.2.1.15.4 and the following:
 - 1. DHI's Fire and Egress Door Assembly Inspector (FDAI) certification.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in cardboard cartons, and wrap bundles of doors in plastic sheeting.
- C. Mark each door on bottom rail with opening number used on Shop Drawings.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, and HVAC system is operating and maintaining temperature and relative humidity at levels designed for building occupants for the remainder of construction period.
- B. Environmental Limitations: Do not deliver or install doors until building is enclosed and weathertight, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during remainder of construction period.

1.8 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace doors and frames that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Delamination of veneer.
 - b. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
 - c. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
 - 2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors and frames.
 - 3. Warranty Period for Solid-Core Interior Doors: Life of installation.
 - 4. Warranty Period for Hollow-Core Interior Doors: Two year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain flush wood doors indicated to be blueprint matched with paneling from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Wood Door and Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings and temperature-rise limits indicated on Drawings, based on testing at positive pressure in accordance with UL 10C or NFPA 252.
 - 1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
 - 2. Temperature-Rise Limit: Where indicated on Drawings, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F above ambient after 30 minutes of standard fire-test exposure.
- B. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing in accordance with UL 1784 and installed in compliance with NFPA 105.

2.3 FLUSH WOOD DOORS AND FRAMES, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with AWI/AWMAC/WI's "Architectural Woodwork Standards."
 - 1. Provide labels and certificates from AWI certification program indicating that doors and frames comply with requirements of grades specified.
 - 2. The Contract Documents contain requirements that are more stringent than the referenced quality standard. Comply with the Contract Documents in addition to those of the referenced quality standard.
- B. Adhesives: Do not use adhesives that contain urea formaldehyde.

2.4 SOLID-CORE FIVE-PLY FLUSH WOOD VENEER-FACED DOOR FOR TRANSPARENT FINISH

- A. Interior Doors:
 - 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. Eggers Industries.
 - b. Lambton Doors.
 - c. Oshkosh Door Company.
 - d. VT Industries Inc.
2. Performance Grade:
- a. ANSI/WDMA I.S. 1A Heavy Duty unless otherwise indicated on Drawings.
 - b. ANSI/WDMA I.S. 1A Extra Heavy Duty: Classrooms public toilets janitor's closets assembly spaces exits and where indicated on Drawings.
 - c. ANSI/WDMA I.S. 1A Standard Duty: Closets (not including janitor's closets) and private toilets and where indicated on Drawings.
3. Architectural Woodwork Standards Grade: Custom.
4. Faces: Single-ply wood veneer not less than 1/50 inch thick.
- a. Species: As indicated on Architectural finish schedule.
 - b. Cut: As indicated on Architectural finish schedule.
 - c. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
 - d. Room Match: Provide door faces of compatible color and grain within each separate room or area of building.
 - e. Transom Match: As indicated.
 - f. Blueprint Match: Where indicated, provide doors with faces produced from same flitches as adjacent wood paneling and arranged to provide blueprint match with wood paneling.
5. Exposed Vertical and Top Edges: Same species as faces or a compatible species - Architectural Woodwork Standards edge Type A.
- a. Fire-Rated Single Doors: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed vertical edges.
 - b. Fire-Rated Pairs of Doors: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.

- c. Fire-Rated Pairs of Doors: Provide formed-steel edges and astragals with intumescent seals.
 - 1) Finish steel edges and astragals with baked enamel.
 - 2) Finish steel edges and astragals to match door hardware (locksets or exit devices).
 - d. Mineral-Core Doors: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.
6. Core for Non-Fire-Rated Doors:
- a. ANSI A208.1, Grade LD-1 particleboard.
 - 1) Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware.
 - 2) Provide doors with glued-wood-stave or WDMA I.S. 10 structural-composite-lumber cores instead of particleboard cores for doors scheduled to receive exit devices in Section 087100 - Door Hardware.
 - b. Glued wood stave.
 - c. WDMA I.S. 10 structural composite lumber.
 - d. Either glued wood stave or WDMA I.S. 10 structural composite lumber.
7. Core for Fire-Rated Doors: As required to achieve fire-protection rating indicated on Drawings.
- a. Blocking for Mineral-Core Doors: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated on Drawings as needed to eliminate through-bolting hardware.
8. Construction: Five plies, hot-pressed bonded (vertical and horizontal edging is bonded to core), with entire unit abrasive planed before veneering.

2.5 SOLID-CORE FIVE-PLY FLUSH WOOD DOORS FOR OPAQUE FINISH

A. Interior Solid-Core Doors:

- 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. Eggers Industries.

- b. Lambton Doors.
 - c. Oshkosh Door Company.
 - d. VT Industries Inc.
- 2. Performance Grade:
 - a. ANSI/WDMA I.S. 1A Heavy Duty unless otherwise indicated on Drawings.
 - b. ANSI/WDMA I.S. 1A Extra Heavy Duty: Classrooms public toilets janitor's closets assembly spaces exits and where indicated on Drawings.
 - c. ANSI/WDMA I.S. 1A Standard Duty: Closets (not including janitor's closets) and private toilets and where indicated on Drawings.
- 3. Architectural Woodwork Standards Grade: Custom.
- 4. Faces: Hardboard or MDF.
 - a. Apply MDO to standard-thickness, closed-grain, hardwood face veneers or directly to high-density hardboard crossbands.
 - b. Hardboard Faces: ANSI A135.4, Class 1 (tempered) or Class 2 (standard).
 - c. MDF Faces: ANSI A208.2, Grade 150 or Grade 160.
- 5. Exposed Vertical and Top Edges: Any closed-grain hardwood.
- 6. Core for Non-Fire-Rated Doors:
 - a. ANSI A208.1, Grade LD-1 particleboard.
 - 1) Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware.
 - 2) Provide doors with glued-wood-stave or WDMA I.S. 10 structural-composite-lumber cores instead of particleboard cores for doors scheduled to receive exit devices in Section 087100 - Door Hardware.
 - b. Glued wood stave.
 - c. WDMA I.S. 10 structural composite lumber.
 - d. Either glued wood stave or WDMA I.S. 10 structural composite lumber.
- 7. Construction: Five plies, hot-pressed bonded (vertical and horizontal edging is bonded to core), with entire unit abrasive planed before veneering.

2.6 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated.

1. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
2. Comply with NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied.
 1. Locate hardware to comply with DHI-WDHS-3.
 2. Comply with final hardware schedules, door frame Shop Drawings, ANSI/BHMA-156.115-W, and hardware templates.
 3. Coordinate with hardware mortises in metal frames, to verify dimensions and alignment before factory machining.
 4. For doors scheduled to receive electrified locksets, provide factory-installed raceway and wiring to accommodate specified hardware.
 5. Metal Astragals: Factory machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.
- C. Transom and Side Panels:
 1. Fabricate matching panels with same construction, exposed surfaces, and finish as specified for associated doors.
 2. Finish bottom edges of transoms and top edges of rabbeted doors same as door stiles.
 3. Fabricate door and transom panels with full-width, solid-lumber meeting rails.
 4. Provide factory-installed spring bolts for concealed attachment into jambs of metal door frames.

2.7 FACTORY PRIMING

- A. Doors for Opaque Finish: Factory prime faces, all four edges, edges of cutouts, and mortises with one coat of wood primer specified on Architectural finish schedule.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames, with Installer present, before hanging doors.
 1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install doors and frames to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
- B. Install frames level, plumb, true, and straight.
 - 1. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
 - 2. Anchor frames to anchors or blocking built in or directly attached to substrates.
 - a. Secure with countersunk, concealed fasteners and blind nailing.
 - b. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork.
 - 1) For factory-finished items, use filler matching finish of items being installed.
 - 3. Install fire-rated doors and frames in accordance with NFPA 80.
 - 4. Install smoke- and draft-control doors in accordance with 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 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 bottom of door to top of decorative floor finish or covering unless otherwise indicated on Drawings.
 - c. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.
 - d. Comply with NFPA 80 for fire-rated doors.
 - 5. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.
 - 6. Bevel fire-rated doors 1/8 inch in 2 inches at lock edge; trim stiles and rails only to extent permitted by labeling agency.

- 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 Project site.

3.3 FIELD QUALITY CONTROL

- A. Inspection Agency: Engage a qualified inspector to perform inspections and to furnish reports to Architect.
- B. Inspections:
 - 1. Provide inspection of installed Work through AWI's Quality Certification Program, certifying that wood doors and frames, including installation, comply with requirements of AWI/AWMCA/WI's "Architectural Woodwork Standards" for the specified grade.
 - 2. Fire-Rated Door Inspections: Inspect each fire-rated door in accordance with NFPA 80, Section 5.2.
 - 3. Egress Door Inspections: Inspect each door equipped with panic hardware, each door equipped with fire exit hardware, each door located in an exit enclosure, each electrically controlled egress door, and each door equipped with special locking arrangements in accordance with NFPA 101, Section 7.2.1.15.
- C. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.
- D. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.
- E. Prepare and submit separate inspection report for each fire-rated door assembly indicating compliance with each item listed in NFPA 80 and NFPA 101.

3.4 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely across entire range of motion.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements.
 - 1. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

3.5 CLEANING AND PROTECTION

- A. Remove packaging and construction debris and legally dispose of off-site.
- B. Clean up installation area and sweep, dust or wipe material to remove any dirt, dust, and other debris.
- C. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning recommendations and comply with their documented instructions.
- D. Repair or replace defaced or damaged finishes caused by work of this section.
- E. Protect installed work from construction activities until time of Substantial Completion.

END OF SECTION 081416

SECTION 083113 - ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes:
 - 1. Access doors and frames for walls and ceilings.
 - 2. Floor access doors and frames.

1.3 SUBMITTALS

- A. Submit under provisions of 013300 - Submittal Procedures.
- B. Product Data: For each type of access door and frame indicated. Include construction details, fire ratings, materials, individual components and profiles, and finishes.
- C. Shop Drawings: Show fabrication and installation details of access doors and frames for each type of substrate. Include plans, elevations, sections, details, and attachments to other work.
- D. Product Schedule: For access doors and frames. Use same designations indicated on Drawings.
- E. Ceiling Coordination Drawings: Reflected ceiling plans, drawn to scale, on which ceiling-mounted items including access doors and frames, lighting fixtures, diffusers, grilles, speakers, sprinklers, and special trim are shown and coordinated with each other.
- F. Maintenance Data: For inclusion in closeout maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of access door(s) and frame(s) through one source from a single manufacturer.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years of documented experience.
- C. Installer Qualifications: Minimum of 5 years experience with installation of similar products.

- D. Fire-Rated Access Doors and Frames: Units complying with NFPA 80 that are identical to access door and frame assemblies tested for fire-test-response characteristics per the following test method and that are listed and labeled by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
 - 1. NFPA 252 or UL 10B for vertical access doors and frames.
 - 2. ASTM E119 or UL 263 for horizontal access doors and frames.
- E. Size Variations: Obtain Architect's acceptance of manufacturer's standard-size units, which may vary slightly from sizes indicated.

1.5 COORDINATION

- A. Verification: Determine specific locations and sizes for access doors needed to gain access to concealed plumbing, mechanical, or other concealed work, and indicate in the schedule specified in "Submittals" Article.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Refer to 016000 - Product Requirements for additional requirements.
- B. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage.
 - 1. Schedule delivery to minimize time on site for storage of materials, without affecting sequence of construction operations.
 - 2. Inspect for damage prior to acceptance.
- C. Store materials, in manufacturer's unopened packing, to prevent deterioration, and in strict accordance with manufacturer's recommendations.

1.7 WARRANTY

- A. Refer to Section 016000 - Product Requirements for additional requirements.
- B. Manufacturer shall warrant all access doors to be free from manufacturing defects in materials, factory finishes, and workmanship from the date of shipment for the specified warranty period.
 - 1. Warranty period: 1 year.

1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with manufacturer's written instructions regarding conditions affecting application.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design: Babcock-Davis.
- B. Subject to the requirements specified herein, other manufacturers offering acceptable products may include, but are not limited to:
 - 1. Acudor Products Inc.
 - 2. MIFAB, Inc.
 - 3. Milcor Inc.
 - 4. Substitutions: See Section 016000 - Product Requirements.

2.2 STEEL MATERIALS

- A. Steel Plates, Shapes, and Bars: ASTM A36.
 - 1. ASTM A123, for galvanizing steel and iron products.
 - 2. ASTM A153, for galvanizing steel and iron hardware.
- B. Rolled-Steel Floor Plate: ASTM A786 rolled from plate complying with ASTM A36 or ASTM A283, Grade C or D.
 - 1. ASTM A123, for galvanizing steel and iron products
 - 2. ASTM A153 for galvanizing steel and iron hardware.
- C. Steel Sheet: Uncoated or electrolytic zinc-coated, ASTM A879 with cold-rolled steel sheet substrate complying with ASTM A1008 Commercial Steel (CS), exposed.
- D. Metallic-Coated Steel Sheet: ASTM A653 Commercial Steel (CS) with A60 zinc-iron-alloy (galvannealed) coating or G60 mill-phosphatized zinc coating; stretcher-leveled standard of flatness; with minimum thickness indicated representing specified thickness according to ASTM A924.
- E. Steel Finishes: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
 - 1. Surface Preparation for Steel Sheet: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning," to remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning," or SSPC-SP 8, "Pickling."
 - 2. Surface Preparation for Metallic-Coated Steel Sheet: Clean surfaces with nonpetroleum solvent so surfaces are free of oil and other contaminants. After

cleaning, apply a conversion coating suited to the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A780.

- a. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
3. Factory-Primed Finish: Apply shop primer immediately after cleaning and pretreating.
4. Baked-Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat, baked-enamel finish consisting of prime coat and thermosetting topcoat. Comply with paint manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 2 mils
5. Powder-Coat Finish: Immediately after cleaning and pretreating, apply manufacturer's standard thermosetting polyester or acrylic urethane powder coating with cured-film thickness not less than 1.5 mils. Prepare, treat, and coat metal to comply with resin manufacturer's written instructions.
- F. Drywall Beads: Edge trim formed from 0.0299-inch zinc-coated steel sheet formed to receive joint compound and in size to suit thickness of gypsum board.
- G. Plaster Beads: Casing bead formed from 0.0299-inch zinc-coated steel sheet with flange formed out of expanded metal lath and in size to suit thickness of plaster.

2.3 ACCESS DOORS AND FRAMES FOR WALLS AND CEILINGS

- A. Flush Access Doors and Trimless Frames: Fabricated from steel sheet.
 1. Door: Minimum 0.060-inch- thick sheet metal, set flush with surrounding finish surfaces.
 2. Frame: Minimum 0.060-inch- thick sheet metal with drywall bead flange.
 3. Hinges: Continuous piano.
 4. Latch: Self-latching bolt operated by hex head wrench pinned hex head wrench spanner head wrench flush key ring turn with interior release.
 5. Lock: Cylinder.
 6. Basis-of-Design: Babcock-Davis BNT
- B. Exterior Flush Access Doors and Frames with Exposed Trim: Weatherproof with extruded door gasket.

1. Door: Minimum 0.040-inch- thick, metallic-coated steel sheet; flush panel construction with manufacturer's standard 2-inch- thick fiberglass insulation.
 2. Frame: Minimum 0.080-inch- thick extruded aluminum.
 3. Hinges: Continuous piano, stainless steel.
 4. Gasketing: EPDM Self-Adhesive, Continuous.
 5. Insulation: 1.6 inch Polyurethane; R-11.
 6. Lock: Locking Handle.
 7. Basis-of-Design: Babcock-Davis BXT-L, 36x36
 - a. Options:
 - 1) Aluminum Door
 - 2) Drip Cap
- C. Fire-Rated, Uninsulated, Flush Access Doors and Trimless Frames: Fabricated from steel sheet.
1. Fire-Resistance Rating: Not less than that of adjacent construction.
 2. Temperature Rise Rating: 250 deg F at the end of 30 minutes.
 3. Door: Flush panel with a core of mineral-fiber insulation enclosed in sheet metal with a minimum thickness of 0.036 inch.
 4. Frame: Minimum 0.060-inch- thick sheet metal with drywall bead.
 5. Hinges: Continuous piano.
 6. Automatic Closer: Spring type.
 7. Latch: Self-latching device operated by flush key with interior release.
 8. Lock: Self-latching device with cylinder lock.
 9. 6. Basis-of-Design: Babcock-Davis BUT

2.4 FABRICATION

- A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.
- B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.
- C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of supports indicated.

1. For trimless frames with drywall bead, provide edge trim for gypsum board securely attached to perimeter of frames.
 2. For trimless frames with plaster bead for full-bed plaster applications, provide zinc-coated expanded metal lath and exposed casing bead welded to perimeter of frames.
 3. Provide mounting holes in frames for attachment of units to metal or wood framing.
 4. Provide mounting holes in frame for attachment of masonry anchors. Furnish adjustable metal masonry anchors.
- D. Recessed Access Doors: Form face of panel to provide recess for application of applied finish. Reinforce panel as required to prevent buckling.
1. For recessed doors with plaster infill, provide self-furring expanded metal lath attached to door panel.
- E. Latching Mechanisms: Furnish number required to hold doors in flush, smooth plane when closed.
1. For cylinder lock, furnish two keys per lock and key all locks alike.
 2. For recessed panel doors, provide access sleeves for each locking device. Furnish plastic grommets and install in holes cut through finish.
- F. Extruded Aluminum: After fabrication, apply manufacturer's standard protective coating on aluminum that will come in contact with concrete.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that project conditions and substrates are acceptable, to the installer, to begin installation of work of this section.
- B. Commencement of Work constitutes acceptance of conditions and substrates by installer.

3.2 INSTALLATION

- A. Comply with manufacturer's written instructions for installing access doors and frames.
- B. Set frames accurately in position and attach securely to supports with plane of face panels aligned with adjacent finish surfaces.
- C. Install doors flush with adjacent finish surfaces or recessed to receive finish material.

3.3 ADJUSTING, CLEANING, AND PROTECTION

- A. Remove packaging and construction debris and legally dispose of off-site.

- B. Clean up installation area and sweep, dust or wipe material to remove any dirt, dust or debris.
- C. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning recommendations and comply with their documented instructions.
- D. Adjust doors and hardware after installation for proper operation.
- E. Remove and replace doors and frames that are warped, bowed, or otherwise damaged.

END OF SECTION 083113

SECTION 083346 - OVERHEAD COILING COUNTERTOP GRILLS

PART 1 - GENERAL

1.01 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.

1.02 DESCRIPTION

- A. Manually operated, lockable rolling counter doors.

1.03 SUBMITTALS

- A. Shop Drawing: Furnish shop drawings for architect's approval. Include elevations, sections, and details indicating dimensions, materials, finishes, conditions for anchorage and support of each coiling security grille.
- B. Product Literature: Submit manufacturer's technical literature describing the product to be used under this section.
- C. Maintenance and Operating Manuals: Furnish complete manuals describing the materials, devices and procedures to be followed in operating and maintaining all coiling security grilles under this section. Include manufacturer's brochures and parts lists describing the actual materials used in the product.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with applicable requirements of the laws, codes, ordinances and regulations of federal, state and municipal authorities having jurisdiction.
- B. Manufacturer Requirements: Coiling security grille manufacturer shall have been in the business of and have experience in manufacturing the type of product covered under this specification section as well as giving credible service for a minimum of five (5) years

1.05 DELIVERY, STORAGE AND HANDLING

- A. General: Deliver and store materials in manufacturer's original packaging, labeled to show name, brand and type. Store materials in a protected dry location off the ground in accordance with manufacturer's instructions.

1.06 WARRANTY

- A. Coiling Security Grille Warranty: Provide Two (2) Year Warranty, effective as of the date of shipment, signed by the manufacturer and installer agreeing to repair or replace work which has failed as a result of defects in materials or workmanship. Upon notification within the warranty period, such defects shall be repaired at no cost to the owner

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Basis-of-Design: Subject to compliance with requirements: McKeon SG3000 Series
 - 1. Substitutions: Refer to Section 012500 - Substitution Procedures.
- B. Subject to requirements, other manufacturers offering acceptable products may include, but are not limited to:
 - 1. Cornell Iron/Cookson

2.02 MATERIALS

- A. Curtain: Shall be the ACL pattern consisting of 5/16" diameter solid aluminum rods encased by 3/8" aluminum tubular spacers 3-1/4" long. The vertical semi-circular links shall be fabricated of 1/8" x 5/8" aluminum strips and shall be set in an open circular pattern. The vertical spacing shall be 7" while the horizontal spacing is 2-5/8".
- B. Bottom Bar: Shall be fabricated of an extruded tubular section of not less than 1 1/2" x 3" aluminum formed to fit curtain and finished to match grille curtain.
- C. Guides: Each guide assembly shall be fabricated of a minimum 3" x 3" steel support angle or steel support tube, with a 2 1/2" minimum extruded aluminum guide finished to match grille curtain. Guides shall be furnished with integral nylon wear strips to prevent metal to metal contact.
- D. Mounting Brackets: Fabricated of hot rolled 3/16" steel plate minimum, brackets shall be provided to house ends of the counterbalance barrel assembly.
- E. Hood: Shall be provided to entirely enclose curtain and counterbalance barrel assembly. Hood shall be fabricated 22 gauge G90 galvanized steel and designed to match brackets. Top and bottom shall be bent and reinforced for stiffness.
- F. Counterbalance Assembly: Coiling security grille shall be counterbalanced by means of adjustable steel helical torsion springs attached to shaft enclosed in pipe with required mounting blocks or rings for attachment of curtain. Grease sealed bearings or self-lubricating graphite bearings shall be attached to the spring barrel which shall be fabricated of hot formed structural quality carbon steel seamless pipe.
- G. Hand Chain Operator: Coiling security grille shall be provided with a gear reduction mechanism designed and built by the door manufacturer. The gear reduction mechanism shall not require more than 35 pounds of operational force to move the coiling security grille in either direction.
- H. Finish: After completion of fabrication, clean all metal surfaces to remove dirt and chemically treat to provide for paint adhesion. All steel components shall receive a coat of prime paint finish and all aluminum surfaces shall be of a clear anodized finish.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine surfaces and field conditions to which this work is to be performed and notify architect if conditions of surfaces exist which are detrimental to proper installation and timely completion of work.
- B. Verify all dimensions taken at job site affecting the work. Notify the architect in any instance where dimensions vary.
- C. Coordinate and schedule work under this section with work of other sections so as not to delay job progress.

3.02 INSTALLATION

- A. Perform installation using only factory approved and certified representatives of the coiling security grille manufacturer.
- B. Install coiling security grille assemblies at locations shown in perfect alignment and elevation, plumb, level, straight and true.
- C. Adjust coiling security grille installation to provide uniform clearances and smooth non-binding operation.

3.03 PROTECTION AND CLEANING

- A. Protect installed work using adequate and suitable means during and after installation until accepted by owner.
- B. Remove, repair or replace materials which have been damaged in any way.
- C. Clean surfaces of grime and dirt using acceptable and recommended means and methods.

END OF SECTION 083346

SECTION 084113.23 - INTERIOR ALUMINUM FRAMED STOREFRONTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Requirements:
 - 1. Drawings and General Provisions of the Contract (including General and Supplementary Conditions and Division 01 sections) apply to the work of this section.
- B. Section Includes:
 - 1. Interior storefront framing.
 - a. Storefront doors.

1.2 RELATED SECTIONS

- A. Section 087100 - Door Hardware for entrance door hardware.
- B. Section 088000 - Glazing for glass.

1.3 PERFORMANCE REQUIREMENTS

- A. General Performance: Aluminum-framed systems shall withstand the effects of the following performance requirements without exceeding performance criteria or failure due to defective manufacture, fabrication, installation, or other defects in construction:
 - 1. Movements of supporting structure indicated on Drawings including, but not limited to, deflection from uniformly distributed and concentrated live loads.
 - 2. Dimensional tolerances of building frame and other adjacent construction.
 - 3. Failure includes the following:
 - a. Deflection exceeding specified limits.
 - b. Thermal stresses transferring to building structure.
 - c. Framing members transferring stresses, including those caused by thermal and structural movements to glazing.
 - d. Glazing-to-glazing contact.
 - e. Noise or vibration created by thermal and/or structural movements.
 - f. Loosening or weakening of fasteners, attachments, and other components.
 - g. Sealant failure.
 - h. Failure of operating units.

4. Deflection of Framing Members:
 - a. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans up to 13 feet 6 inches and to 1/240 of clear span plus 1/4 inch for spans greater than 13 feet 6 inches or an amount that restricts edge deflection of individual glazing lites to 3/4 inch, whichever is less.
 - b. Deflection Parallel to Glazing Plane: Limited to L/360 of clear span or 1/8 inch, whichever is smaller.
5. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes:
 - a. Temperature Change: 120° F, ambient; 180° F, material surfaces.
 - b. Thermal Cycling: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5.
 - 1) Interior Ambient-Air Temperature: 75° F.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for aluminum-framed systems.
- B. Shop Drawings: For aluminum-framed systems. Include plans, elevations, sections, details, and attachments to other work, and structural analysis data signed and sealed by the qualified professional engineer responsible for their preparations, and licensed in the State of Texas.
 1. Include details of provisions for system expansion and contraction.
 2. For entrance doors, include hardware schedule and indicate operating hardware types, functions, quantities, and locations.
 3. Include computer analysis / thermographic diagrams indicating compliance with thermal performance requirements.
- C. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
- D. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and

related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

- E. Product Test Reports: For the following tests, performed by a qualified testing agency.
 - 1. Structural performance.
 - 2. Field quality-control reports.
- F. Sample Warranties.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Engineering Responsibility: Prepare data for aluminum-framed systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in systems similar to those indicated for this Project. Provide design and calculations signed and sealed by the Professional Engineer responsible for their preparation.
- C. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.
 - 1. Do not revise intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.
- D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Build mockup of typical wall area as shown on Drawings, or, as directed by Architect.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

- E. Preinstallation Conference: Conduct conference at Project site.
 - 1. Include the following attendees at a minimum:
 - a. Construction Manager,
 - b. Superintendent
 - c. Subcontractor Foreman
 - d. Architect,
- F. The following topics will need to be addressed along with normal pre-construction requirements:
 - 1. Delivery and storage requirements;
 - 2. Shop mock-up requirements;
 - 3. Field mock-up requirements;
 - 4. Factory Quality Control testing;
 - 5. Field Quality Control testing;
 - 6. Tie-in to adjacent materials;
 - 7. Schedule.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Accept materials on site in manufacturer's unopened original packaging.
- B. Store primers and sealants in dry location with ambient temperature range of 60 to 80°. F (15 to 27°. C).

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of structural supports for aluminum-framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.

1.8 WARRANTY

- A. Manufacturer's Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of aluminum-framed systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including, but not limited to, excessive deflection.
 - b. Noise or vibration caused by thermal movements.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

- d. Adhesive or cohesive sealant failures.
 - e. Failure of operating components.
 - f. Water or air leakage through fixed glazing and framing areas.
- 2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design: Subject to compliance with requirements: Kawneer
 - 1. Substitutions: Refer to Section 012500 - Substitution Procedures.
- B. Subject to the requirements contained herein, other manufacturers offering acceptable products may include, but are not limited to:
 - 1. YKK AP America Inc.
 - 2. RACO

2.2 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - 1. Sheet and Plate: ASTM B 209.
 - 2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
 - 3. Extruded Structural Pipe and Tubes: ASTM B 429.
 - 4. Structural Profiles: ASTM B 308.
- B. Steel Reinforcement:
 - 1. Structural Shapes, Plates, and Bars: ASTM A 36.
 - 2. Cold-Rolled Sheet and Strip: ASTM A 1008/.
 - 3. Hot-Rolled Sheet and Strip: ASTM A 1011/.
- C. Primer: Manufacturer's standard zinc-rich, corrosion-resistant primer, complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM and prepare surfaces according to applicable SSPC standard.

2.3 STOREFRONT SYSTEMS

- A. Interior Storefront System: Manufacturer's standard non-thermal, extruded aluminum framing members of thickness required to support imposed loads.
- B. Basis-of-Design: Kawneer Trifab VersaGlaze 450-2" Sightline.
 - 1. Size: 2 inches x 4-1/2 inches.

2. Construction: Non-thermal.
 3. Glazing System: Retained mechanically with gaskets on four sides.
 4. Glazing Plane: Center.
 5. Glazing Type: 1/4 inch thick clear monolithic glass.
 6. Finish: Mica fluoropolymer.
 7. Fabrication Method: Field-fabricated stick system.
 8. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
- C. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- D. Perimeter Framing Members: Furnish exterior perimeter framing members with closed backs or continuous sealed backer plates as required to support dual lines of sealant with backer rods.
- E. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
 2. Reinforce members as required to receive fastener threads.
 3. Use exposed fasteners with countersunk Phillips screw heads, fabricated from stainless steel.
 4. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts, complying with ASTM A 123 or ASTM A 153.
- F. Framing System Gaskets and Sealants: Manufacturer's standard, recommended by manufacturer for joint type for smoke infiltration.

2.4 STOREFRONT DOORS

- A. Interior Storefront Doors: Glazed, nonthermal entrance doors for manual-swing operation.
1. Basis-of-Design: Kawneer 500 Entrance
- B. Door Construction: 1-3/4 inches thick. Welded corner construction.
- C. Door Design: Wide stile; 5 inch wide stiles and top rail, 10-inch wide bottom rail; for 1/4 inch thick monolithic glass.

- D. Glazing Stops and Gaskets: Square, snap-on, extruded-aluminum stops and preformed gaskets.
- E. Finish: Match adjacent framing.

2.5 GLAZING

- A. Glazing: As specified in Section 088000 - Glazing.
- B. Glazing Gaskets: Manufacturer's standard compression types; replaceable, molded or extruded, of profile and hardness required to maintain watertight seal.
- C. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.
- D. Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.

2.6 ACCESSORIES

- A. Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in Section 079200 - Joint Sealants.
- B. Bituminous Paint: Cold-applied, asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos; formulated for 30-mil thickness per coat.

2.7 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
 - 1. Profiles that are sharp, straight, and free of defects or deformations.
 - 2. Accurately fitted joints with ends coped or mitered.
 - 3. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
 - 4. Provisions for field replacement of glazing from interior.
 - 5. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
- E. Storefront Framing: Fabricate components for assembly using screw-spline system.

- F. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.
 - 1. At interior doors, provide silencers at stops to prevent metal-to-metal contact. Install three silencers on strike jamb of single-door frames and two silencers on head of frames for pairs of doors.
- G. Entrance Doors: Reinforce doors as required for installing entrance door hardware.
- H. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.
 - 1. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.8 FINISHES

- A. Aluminum: Mica Fluoropolymer Finish: AAMA 2605. Two-coat fluoropolymer finish with suspended mica particles containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 1. Color: As indicated.

PART 3 - EXECUTION

3.1 GENERAL

- A. Comply with manufacturer's product data, including technical bulletins, product catalog, installation instructions, and product package instructions for installation procedures.

3.2 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
 - 1. Commencement of work constitutes acceptance of conditions and substrates by installer.

3.3 INSTALLATION

- A. General:
 - 1. Comply with manufacturer's written instructions.
 - 2. Do not install damaged components.
 - 3. Fit joints to produce hairline joints free of burrs and distortion.

4. Rigidly secure nonmovement joints.
 5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
 6. Seal joints air, water, and smoke tight unless otherwise indicated.
 7. System shall include all components necessary to accommodate dual lines of sealant around the perimeter, including backer plates, end caps, and sill receivers.
- B. Metal Protection:
1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or applying sealant or tape, or by installing nonconductive spacers as recommended by manufacturer for this purpose.
 2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- C. Install components to drain water passing joints, condensation occurring within framing members and moisture migrating with the system to the exterior.
- D. Install components plumb and true in alignment with established lines and grades, and without warp or rack.
- E. Install continuous sill members and flashing in full sealant bed to produce weathertight installation.
- F. Install glazing as specified in Section 088000 - Glazing.
- G. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.
- H. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

3.4 TOLERANCES

- A. Install aluminum-framed systems to comply with the following maximum erection tolerances:
1. Location and Plane: Limit variation from true location and plane to 1/8 inch in 12 feet; 1/4 inch over total length.
- B. Alignment:
1. Where surfaces abut in line, limit offset from true alignment to 1/16 inch.
 2. Where surfaces meet at corners, limit offset from true alignment to 1/32 inch.

3. Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections.
- B. Testing Services: Testing and inspecting of representative areas to determine compliance of installed systems with specified requirements shall take place as follows and in successive phases as indicated on Drawings. Do not proceed with installation of the next area until test results for previously completed areas show compliance with requirements.
- C. Remedial measures conducted on the test specimens to achieve passing results are to be incorporated into previous and future installations and reflected in the as-built shop drawings.
- D. Repair or remove work if test results and inspections indicate that it does not comply with specified requirements.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- F. Aluminum-framed assemblies will be considered defective if they do not pass tests and inspections.
- G. Prepare test and inspection reports.

3.6 ADJUSTING, CLEANING, AND PROTECTION

- A. Remove packaging and construction debris and legally dispose of off-site.
- B. Adjust operating entrance door hardware to function smoothly as recommended by manufacturer.
 1. For entrance doors accessible to people with disabilities, adjust closers to provide a 3-second closer sweep period for doors to move from a 70-degree open position to 3 inches from the latch, measured to the leading door edge.
- C. Upon completion of work, remove packaging and construction debris and legally dispose of off-site.
- D. Clean up installation area and sweep, dust or wipe material to remove any dirt, dust or debris.
- E. Repair or replace defacement or damage of existing work, caused by work of this section.

- F. Protect installed work as recommended by the manufacturer against damage.

END OF SECTION 084113.23

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:
 - 1. Swinging doors.
- B. Door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
 - 2. Electromechanical door hardware.
 - 3. Cylinders specified for doors in other sections.
- C. Related Sections:
 - 1. Division 08 Section "Hollow Metal Doors and Frames".
 - 2. Division 08 Section "Flush Wood Doors".
 - 3. Division 08 Section "Aluminum-Framed Entrances and Storefronts".
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ICC/IBC - International Building Code.
 - 3. NFPA 70 - National Electrical Code.
 - 4. NFPA 80 - Fire Doors and Windows.
 - 5. NFPA 101 - Life Safety Code.
 - 6. NFPA 105 - Installation of Smoke Door Assemblies.
 - 7. State Building Codes, Local Amendments.
- E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:
 - 1. ANSI/BHMA Certified Product Standards - A156 Series.
 - 2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
 - 3. ANSI/UL 294 - Access Control System Units.

4. UL 305 - Panic Hardware.
5. ANSI/UL 437- Key Locks.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing, fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Warranty information for each product.
 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware,

and other information essential to the coordinated review of the Door Hardware Schedule.

- C. Shop Drawings: Details of electrified access control hardware indicating the following:
 - 1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
 - a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
 - b. Complete (risers, point-to-point) access control system block wiring diagrams.
 - c. Wiring instructions for each electronic component scheduled herein.
 - 2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.
- D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- E. Informational Submittals:
 - 1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

1.4 CLOSEOUT SUBMITTALS

- A. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.
- B. Project Record Documents: Provide record documentation of as-built door hardware sets in digital format (.pdf, .docx, .xlsx, .csv) and as required in Division 01, Project Record Documents.

1.5 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).
- C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
 - 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
 - 2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
- F. Each unit to bear third party permanent label indicating compliance with the referenced testing standards.
- G. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 3. Review sequence of operation narratives for each unique access controlled opening.
 4. Review and finalize construction schedule and verify availability of materials.
 5. Review the required inspecting, testing, commissioning, and demonstration procedures
- H. At completion of installation, provide written documentation that components were applied according to manufacturer's instructions and recommendations and according to approved schedule.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.7 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

- B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.8 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 - 1. Structural failures including excessive deflection, cracking, or breakage.
 - 2. Faulty operation of the hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 4. Electrical component defects and failures within the systems operation.
- C. Warranty Period: Unless otherwise indicated, warranty shall be one year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 BUTT HINGES

- A. Hinges: ANSI/BHMA A156.1 butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
 - 1. Quantity: Provide the following hinge quantity:
 - a. Two Hinges: For doors with heights up to 60 inches.
 - b. Three Hinges: For doors with heights 61 to 90 inches.
 - c. Four Hinges: For doors with heights 91 to 120 inches.
 - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
 - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
 - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
 - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
 - b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
4. Hinge Options: Comply with the following:
 - a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for all out-swinging lockable doors.
5. Manufacturers:
 - a. McKinney (MK) - TA/T4A Series, 5-knuckle.

2.2 CONTINUOUS HINGES

- A. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 continuous geared hinge. with minimum 0.120-inch thick extruded 6063-T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
 1. Manufacturers:
 - a. Pemko (PE).

2.3 DOOR OPERATING TRIM

- A. Flush Bolts and Surface Bolts: Provide products conforming to ANSI/BHMA A156.3 and A156.16, Grade 1.
 1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
 2. Furnish dust proof strikes for bottom bolts.

3. Surface bolts to be minimum 8" in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
 4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
 5. Manufacturers:
 - a. Rockwood (RO).
- B. Door Push Plates and Pulls: ANSI/BHMA A156.6 door pushes and pull units of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
 2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
 3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
 4. Pulls, where applicable, shall be provided with a 10" clearance from the finished floor on the push side to accommodate wheelchair accessibility.
 5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets. When through-bolt fasteners are in the same location as a push plate, countersink the fasteners flush with the door face allowing the push plate to sit flat against the door.
 6. Manufacturers:
 - a. Rockwood (RO).

2.4 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
1. Manufacturers:
 - a. Sargent Manufacturing (SA) – VJ Keyway.
 - b. Provide cylinders "O" Bitted and Owner to key cylinders.

- c. Provide two (2) key blanks per cylinder.
 - d. No Substitution – Facility Standard.
- B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:
 - 1. Threaded mortise cylinders with rings and cams to suit hardware application.
 - 2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 - 3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
 - 4. Tubular deadlocks and other auxiliary locks.
 - 5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
 - 6. Keyway: Match Facility Restricted Keyway – Sargent VJ Keyway.
- C. Construction Keying: Provide construction master keyed cylinders.

2.5 MORTISE LOCKS AND LATCHING DEVICES

- A. Mortise Locksets, Grade 1 (Heavy Duty): Provide ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed mortise locksets. Listed manufacturers shall meet all functions and features as specified herein.
 - 1. Manufacturers:
 - a. Sargent Manufacturing (SA) - 8200 Series.
 - b. No Substitution – Facility Standard.

2.6 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
 - 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
 - 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
 - 3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
 - 4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

- B. Standards: Comply with the following:
1. Strikes for Mortise Locks and Latches: BHMA A156.13.
 2. Strikes for Bored Locks and Latches: BHMA A156.2.
 3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
 4. Dustproof Strikes: BHMA A156.16.

2.7 ELECTRIC STRIKES

- A. Standard Electric Strikes: Electric strikes conforming to ANSI/BHMA A156.31, Grade 1, for use on non-rated or fire rated openings. Strikes shall be of stainless steel construction tested to a minimum of 1500 pounds of static strength and 70 foot-pounds of dynamic strength with a minimum endurance of 1 million operating cycles. Provide strikes with 12 or 24 VDC capability, fail-secure unless otherwise specified. Where specified provide latchbolt and latchbolt strike monitoring indicating both the position of the latchbolt and locked condition of the strike.
1. Manufacturers:
 - a. HES (HS) - 1500/1600 Series.
- B. Provide electric strikes with in-line power controller and surge suppressor by the same manufacturer as the strike with the combined products having a five year warranty.

2.8 CONVENTIONAL EXIT DEVICES

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
1. Exit devices shall have a five-year warranty.
 2. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
 3. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
 4. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.

5. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
 6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
 - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
 - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
 7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
 8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
 9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
 10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
 11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed exit devices. Listed manufacturers shall meet all functions and features as specified herein.
1. Manufacturers:
 - a. Sargent Manufacturing (SA) - 80 Series.
 - b. No Substitution – Facility Standard.

2.9 SURFACE DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:
1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
 2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.

3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
 4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
 5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
 6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.
- B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.
1. Large body cast iron surface mounted door closers shall have a 30-year warranty.
 2. Manufacturers:
 - a. LCN Closers (LC) - 4040XP Series.
 - b. No Substitution – Facility Standard.

2.10 ARCHITECTURAL TRIM

- A. Door Protective Trim
1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
 2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.

3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 protection plates (kick, armor, or mop), fabricated from the following:
 - a. Stainless Steel: 300 grade, 050-inch thick.
5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:
 - a. Rockwood (RO).

2.11 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
 1. Manufacturers:
 - a. Rockwood (RO).
- C. Overhead Door Stops and Holders: ANSI/BHMA A156.8, Grade 1 Certified Products Directory (CPD) listed overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.
 1. Manufacturers:
 - a. Norton Rixson (RF).
 - b. Sargent Manufacturing (SA).

2.12 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on

exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
 - 1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: Assemblies complying with NFPA80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
 - 1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NFPA 252, Standard Methods of Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Manufacturers:
 - 1. Pemko (PE).

2.13 ELECTRONIC ACCESSORIES

- A. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.
 - 1. Manufacturers:
 - a. Securitron (SU) - DPS Series.

2.14 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.15 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and 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 specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Push Plates and Door Pulls: When through-bolt fasteners are in the same location as a push plate, countersink the fasteners flush with the door face allowing the push plate to sit flat against the door.
- E. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- F. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection (Punch Report): Reference Division 01 Sections "Closeout Procedures". Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.
1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final

operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
 - 1. Quantities listed are for each pair of doors, or for each single door.
 - 2. The supplier is responsible for handing and sizing all products.
 - 3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
 - 4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.
- B. Manufacturer's Abbreviations:
 - 01. MK - McKinney
 - 02. PE - Pemko
 - 03. RO - Rockwood
 - 04. AD - Adams Rite
 - 05. SA - SARGENT

- 06. HS - HES
- 07. RF - Rixson
- 08. LC - LCN Closers
- 09. OT - Other
- 10. SU - Securitron

Hardware Sets

Set: 1.0

Doors: 101A, 101B

| | | | |
|-----------------------|--------------------------------|--------|----|
| 2 Continuous Hinge | DFMxxSLF-HD1 | | PE |
| 2 Push Bar | 8893 | US10BE | SA |
| 2 Door Pull | RM3301-72 Mtg-Type 1XHD MP | 10BE | RO |
| 2 Surface Closer | 4040XP SCUSH TBWMS | 690 | LC |
| 1 Perimeter Gasketing | By Door and Frame Manufacturer | | OT |

Notes: Field verify and coordinate hardware with exterior vestibule.

Set: 2.0

Doors: 201.2

| | | | |
|-----------------------|--------------------------------|-------|----|
| 2 Continuous Hinge | CFMxxSLF-HD1 | | PE |
| 2 Push Bar & Pull | 11147 | US32D | RO |
| 2 Surface Closer | 4040XP SCUSH TBWMS | 689 | LC |
| 1 Perimeter Gasketing | By Door and Frame Manufacturer | | OT |

Set: 3.0

Doors: 201.1

| | | | |
|-----------------------|--------------------------------|-------|----|
| 2 Continuous Hinge | CFMxxSLF-HD1 | | PE |
| 2 Push Bar & Pull | 11147 | US32D | RO |
| 2 Surface Closer | 4040XP SCUSH TBWMS | 689 | LC |
| 1 Perimeter Gasketing | By Door and Frame Manufacturer | | OT |

Notes: Prep door and frame for future card reader.

Set: 4.0

Doors: 215

| | | | |
|-----------------------|---|-------|----|
| 6 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US26D | MK |
| 2 Flush Bolt | 555 | US26D | RO |
| 1 Dust Proof Strike | 570 | US26D | RO |
| 1 Classroom Lock | 8237 LW1L x VJ Keyway | US26D | SA |
| 1 Surface Closer | 4040XP REG/PA to suite TBWMS | 689 | LC |
| 2 Kick Plate | K1050 10" High CSK BEV | US32D | RO |
| | 406/409/441/443 to suit conditions | | |
| 2 Stop | (if wall or floor stop won't work, use OHS) | US32D | RO |

Notes: Mount closer on active leaf only.

Set: 5.0

Doors: 202

| | | | |
|--------------------------|---|--------|----|
| 6 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE | MK |
| 2 Flush Bolt | 555 | 10BE | RO |
| 1 Dust Proof Strike | 570 | 10BE | RO |
| 1 Classroom Lock | 8237 LW1L x VJ Keyway | US10BE | SA |
| 1 Door Closer | 4040XP REG/PA to suit TBWMS | 690 | LC |
| 2 Kick Plate | K1050 10" High CSK BEV | 10BE | RO |
| | 406/409/441/443 to suit conditions | | |
| 2 Wall Stop | (if wall or floor stop won't work, use OHS) | 10BE | RO |
| 2 Silencer - Metal Frame | 608 | | RO |

Notes: Mount closer on active leaf only.

Set: 6.0

Doors: 201L

| | | | |
|-----------------------|------------------------|--------|----|
| 6 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE | MK |
| 2 Flush Bolt | 555 | 10BE | RO |
| 1 Dust Proof Strike | 570 | 10BE | RO |
| 1 Storeroom Lock | 8204 LW1L x VJ Keyway | US10BE | SA |

| | | | |
|--------------------------|--|------|----|
| 2 Wall Stop | 406/409/441/443 to suit conditions (if wall or floor stop won't work, use OHS) | 10BE | RO |
| 2 Silencer - Metal Frame | 608 | | RO |

Set: 7.0

Doors: 2M05

| | | | |
|--------------------------|--|--------|----|
| 6 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE | MK |
| 2 Flush Bolt | 555 | 10BE | RO |
| 1 Dust Proof Strike | 570 | 10BE | RO |
| 1 Storeroom Lock | 8204 LW1L x VJ Keyway | US10BE | SA |
| 1 Door Closer | 4040XP REG/PA to suit TBWMS | 690 | LC |
| 2 Kick Plate | K1050 10" High CSK BEV | 10BE | RO |
| 2 Wall Stop | 406/409/441/443 to suit conditions (if wall or floor stop won't work, use OHS) | 10BE | RO |
| 2 Silencer - Metal Frame | 608 | | RO |

Notes: Mount closer on active leaf only.

Set: 8.0

Doors: 2M01.2

| | | | |
|--------------------------|------------------------|--------|----|
| 6 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE | MK |
| 2 Flush Bolt | 555 | 10BE | RO |
| 1 Dust Proof Strike | 570 | 10BE | RO |
| 1 Storeroom Lock | 8204 LW1L x VJ Keyway | US10BE | SA |
| 1 Surf Overhead Stop | 9-x36 | 613E | RF |
| 1 Surface Closer | 4040XP SCUSH TBWMS | 690 | LC |
| 2 Kick Plate | K1050 10" High CSK BEV | 10BE | RO |
| 2 Silencer - Metal Frame | 608 | | RO |

Notes: Mount closer on active leaf and overhead stop on inactive leaf.

Set: 9.0

Doors: 2NSTAIR, 2SSTAIR

| | | |
|----------------------------|--|-----------|
| 3 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE MK |
| 1 Rim Exit Device, Passage | 12 TB 8815 ETL | US10BE SA |
| 1 Door Closer | 4040XP REG/PA to suit TBWMS | 690 LC |
| 1 Kick Plate | K1050 10" High CSK BEV | 10BE RO |
| 1 Wall Stop | 406/409/441/443 to suit conditions (if wall or floor stop won't work, use OHS) | 10BE RO |
| 1 Gasketing - Smoke Seal | S88BL x perimeter W x H | PE |

Set: 10.0

Doors: 2H03

| | | |
|----------------------------|--|-----------|
| 3 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE MK |
| 1 Rim Exit Device, Passage | TB 8815 ETL | US10BE SA |
| 1 Door Closer | 4040XP REG/PA to suit TBWMS | 690 LC |
| 1 Kick Plate | K1050 10" High CSK BEV | 10BE RO |
| 1 Wall Stop | 406/409/441/443 to suit conditions (if wall or floor stop won't work, use OHS) | 10BE RO |
| 3 Silencer - Metal Frame | 608 | RO |

Notes: Prep door and frame for future card reader.

Set: 11.0

Doors: 200, 203A, 203B

| | | |
|------------------------------|--|-----------|
| 3 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE MK |
| 1 Rim Exit Device, Classroom | TB 8813 ETL x VJ Keyway | US10BE SA |
| 1 Door Closer | 4040XP REG/PA to suit TBWMS | 690 LC |
| 1 Kick Plate | K1050 10" High CSK BEV | 10BE RO |
| 1 Wall Stop | 406/409/441/443 to suit conditions (if wall or floor stop won't work, use OHS) | 10BE RO |
| 3 Silencer - Metal Frame | 608 | RO |

Set: 12.0

Doors: 201A, 201B, 201C

| | | | |
|------------------------------|--|-------|----|
| 3 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US26D | MK |
| 1 Storeroom/Closet Lock | 8204 LW1L x VJ Keyway | US26D | SA |
| 1 SMART Pac Bridge Rectifier | 2005M3 | | HS |
| 1 Electric Strike | 1600-CLB | 630 | HS |
| 1 Surface Closer | 4040XP REG/PA to suite TBWMS | 689 | LC |
| | 406/409/441/443 to suit conditions | | |
| 1 Stop | (if wall or floor stop won't work, use OHS) | US32D | RO |
| 1 Position Switch | DPS-M / W | | SU |
| 1 Card Reader | Provided by Security Contractor | | OT |
| 1 Power Supply | Provided by Security Contractor | | OT |

Notes: Door normally closed, latched and secured.
Entry by valid card read or key override.
Free egress at all times.

Set: 13.0

Doors: 118, 204A

| | | | |
|------------------------------|--|--------|----|
| 3 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE | MK |
| 1 Storeroom Lock | 8204 LW1L x VJ Keyway | US10BE | SA |
| 1 Electric Strike | 1600-CLB | 613E | HS |
| 1 SMART Pac Bridge Rectifier | 2005M3 | | HS |
| 1 Door Closer | 4040XP REG/PA to suit TBWMS | 690 | LC |
| 1 Kick Plate | K1050 10" High CSK BEV | 10BE | RO |
| | 406/409/441/443 to suit conditions | | |
| 1 Wall Stop | (if wall or floor stop won't work, use OHS) | 10BE | RO |
| 1 Position Switch | DPS-M / W | | SU |
| 1 Card Reader | Provided by Security Contractor | | OT |
| 1 Power Supply | Provided by Security Contractor | | OT |

Notes: Door normally closed, latched and secured.
Entry by valid card read or key override.
Free egress at all times.

Set: 14.0

Doors: 204B, 211, 212, 213, 217, 220, 2C01, 2C02, 2H04.1, 2H04.2

| | | |
|--------------------------|--|-----------|
| 3 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE MK |
| 1 Classroom Lock | 8237 LW1L x VJ Keyway | US10BE SA |
| 1 Door Closer | 4040XP REG/PA to suit TBWMS | 690 LC |
| 1 Kick Plate | K1050 10" High CSK BEV | 10BE RO |
| 1 Wall Stop | 406/409/441/443 to suit conditions (if wall or floor stop won't work, use OHS) | 10BE RO |
| 3 Silencer - Metal Frame | 608 | RO |

Set: 15.0

Doors: 214

| | | |
|--------------------------|--|----------|
| 3 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US26D MK |
| 1 Classroom Lock | 8237 LW1L x VJ Keyway | US26D SA |
| 1 Surface Closer | 4040XP REG/PA to suite TBWMS | 689 LC |
| 1 Kick Plate | K1050 10" High CSK BEV | US32D RO |
| 1 Stop | 406/409/441/443 to suit conditions (if wall or floor stop won't work, use OHS) | US32D RO |
| 3 Silencer - Metal Frame | 608 | RO |

Set: 16.0

Doors: 179

| | | |
|--------------------------|--|-----------|
| 3 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE MK |
| 1 Storeroom Lock | 8204 LW1L x VJ Keyway | US10BE SA |
| 1 Wall Stop | 406/409/441/443 to suit conditions (if wall or floor stop won't work, use OHS) | 10BE RO |
| 3 Silencer - Metal Frame | 608 | RO |

Set: 17.0

Doors: 1M01, 2M02, 2M03, 2T01, 2T02

| | | |
|-----------------------|-----------------------------|-----------|
| 3 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE MK |
| 1 Storeroom Lock | 8204 LW1L x VJ Keyway | US10BE SA |
| 1 Door Closer | 4040XP REG/PA to suit TBWMS | 690 LC |

| | | | |
|--------------------------|--|------|----|
| 1 Kick Plate | K1050 10" High CSK BEV | 10BE | RO |
| 1 Wall Stop | 406/409/441/443 to suit conditions (if wall or floor stop won't work, use OHS) | 10BE | RO |
| 3 Silencer - Metal Frame | 608 | | RO |

Set: 18.0

Doors: 2M01.1

| | | | |
|--------------------------|------------------------|--------|----|
| 3 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE | MK |
| 1 Storeroom Lock | 8204 LW1L x VJ Keyway | US10BE | SA |
| 1 Surface Closer | 4040XP SCUSH TBWMS | 690 | LC |
| 1 Kick Plate | K1050 10" High CSK BEV | 10BE | RO |
| 3 Silencer - Metal Frame | 608 | | RO |

Set: 19.0

Doors: 118C, 118D, 201F, 201G, 201H, 201J, 201K, 205A, 205B, 207, 208, 209, 210, 211A, 211B, 211C, 211D, 211E, 211F, 212A, 212C, 212D, 212E, 212F, 213A, 213B, 213C, 213D, 213E, 213F, 214A, 214B, 215A, 217A, 218, 220A, 220B, 220C, 220D, 220E, 220F, 220G, 220H, 220K

| | | | |
|--------------------------|--|--------|----|
| 3 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE | MK |
| 1 Office/Entry Lock | 8205 LW1L x VJ Keyway | US10BE | SA |
| 1 Wall Stop | 406/409/441/443 to suit conditions (if wall or floor stop won't work, use OHS) | 10BE | RO |
| 3 Silencer - Metal Frame | 608 | | RO |

Set: 20.0

Doors: 212B

| | | | |
|--------------------------|------------------------|--------|----|
| 3 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE | MK |
| 1 Office/Entry Lock | 8205 LW1L x VJ Keyway | US10BE | SA |
| 1 Surf Overhead Stop | 9-x36 | 613E | RF |
| 3 Silencer - Metal Frame | 608 | | RO |

Set: 21.0

Doors: 220J

| | | |
|--------------------------|--|-----------|
| 3 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE MK |
| 1 Passage Set | 8215 LW1L | US10BE SA |
| 1 Wall Stop | 406/409/441/443 to suit conditions (if wall or floor stop won't work, use OHS) | 10BE RO |
| 3 Silencer - Metal Frame | 608 | RO |

Set: 22.0

Doors: 118A, 206, 251

| | | |
|--------------------------|--|-----------|
| 3 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE MK |
| 1 Passage Set | 8215 LW1L | US10BE SA |
| 1 Door Closer | 4040XP REG/PA to suit TBWMS | 690 LC |
| 1 Kick Plate | K1050 10" High CSK BEV | 10BE RO |
| 1 Wall Stop | 406/409/441/443 to suit conditions (if wall or floor stop won't work, use OHS) | 10BE RO |
| 3 Silencer - Metal Frame | 608 | RO |

Set: 23.0

Doors: 200A, 200B, 2R03, 2R04

| | | |
|----------------------------|--|-----------|
| 3 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE MK |
| 1 Privacy Set w/ Indicator | V50 8265 LW1L | US10BE SA |
| 1 Door Closer | 4040XP REG/PA to suit TBWMS | 690 LC |
| 1 Kick Plate | K1050 10" High CSK BEV | 10BE RO |
| 1 Wall Stop | 406/409/441/443 to suit conditions (if wall or floor stop won't work, use OHS) | 10BE RO |
| 3 Silencer - Metal Frame | 608 | RO |

Set: 24.0

Doors: 2R01, 2R02

| | | |
|--------------------------|--|-----------|
| 3 Hinge, Full Mortise | TA2714 4-1/2" x 4-1/2" | US10BE MK |
| 1 Pull Plate | 107x70C | 10BE RO |
| 1 Push Plate | 70C-RKW | 10BE RO |
| 1 Door Closer | 4040XP REG/PA to suit TBWMS | 690 LC |
| 1 Kick Plate | K1050 10" High CSK BEV | 10BE RO |
| | 406/409/441/443 to suit conditions | |
| 1 Wall Stop | (if wall or floor stop won't work, use OHS) | 10BE RO |
| 3 Silencer - Metal Frame | 608 | RO |

END OF SECTION 087100

SECTION 088000 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes glass and glazing units for the following products and applications, and glazing requirements referenced by other sections:
 - 1. Windows.
 - 2. Doors.
 - 3. Interior borrowed lites.
 - 4. Glazed entrances.
 - 5. Storefront framing.
 - 6. Glazing accessories.

1.3 RELATED SECTIONS

- A. Division 07 Section - Joint Sealants.
- B. Division 08 Section - Mirrors.
- C. Section 090600 - Exterior Design Selection Summary.
- D. Division 08 Section - Glazed Aluminum Curtain Walls.

1.4 DEFINITIONS

- A. Manufacturers of Primary Glass: Firms that produce primary glass, as defined in referenced industry publications.
- B. Manufacturers/Fabricators of Glass Products: Firms that utilize primary glass in the production of glass products that may include coated glass, laminated glass, and insulating glass.
- C. Sealed Insulating Glass Unit Surfaces:
 - 1. Surface 1: Exterior surface of outer lite.
 - 2. Surface 2: Interspace-facing surface of outer lite.
 - 3. Surface 3: Interspace-facing surface of inner lite.
 - 4. Surface 4: Interior surface of inner lite.

1.5 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems that will withstand indicated loads and normal thermal movement without failure, including loss or glass breakage resulting from defective manufacture, fabrication, or installation; failure of glazing systems to remain watertight and airtight; or deterioration of glazing materials.
- B. Glass Design: Glass thicknesses indicated are minimums. Select actual glass lite thicknesses by analyzing loads and conditions. Provide glass lites in the thicknesses and in strengths required to meet or exceed the following criteria:
 - 1. Glass Thicknesses: Comply with ASTM E 1300, as follows:
 - a. Specified Design Wind Loads: As indicated on drawings.
 - b. Probability of Breakage for Vertical Glazing: 8 lites per 1000 for lites set within 15 degrees of vertical and under wind load for a load duration of 3 seconds.
 - c. Thickness of Tinted Glass: Provide the same thickness for each tint color for all applications.
 - d. Thermal Movements: Allow for thermal movements of glazing components and glass framing members resulting from a temperature change range of 120 deg F ambient and 180 deg F material surfaces.
- C. Thermal and Optical Performance Properties: Provide glass meeting specified performance properties, based on manufacturer's published test data for units of thickness indicated, and the following:
 - 1. Center-of-Glass Values: Per LBNL Window 5.0 (or higher) analysis, as follows:
 - a. U-Factors: NFRC 100 expressed as Btu/sq. ft. x h x deg F.
 - b. Solar Heat Gain Coefficient: NFRC 200.
 - c. Solar Optical Properties: NFRC 300.

1.6 SUBMITTALS

- A. Submit under provisions of 013300 - Submittal Procedures.
- B. Product Data: Manufacturer's data sheets for each glass product and glazing material.
- C. Samples: 12-inch-square, for each type of glass product, other than monolithic clear float glass.
- D. Glazing Schedule: Prepare schedule using designations used on Drawings.

- E. Product Certificates: Signed by manufacturers/fabricators of glass products certifying that products furnished comply with project requirements.
- F. Preconstruction Adhesion and Compatibility Test Report: From glazing sealant manufacturer, based on submitted samples or acceptable data from previous testing of current formulations with similar products.
- G. Qualification Information: For Installer firm and Installer's manufacturer/fabricator-trained field supervisor.
- H. Warranties: Submit sample meeting warranties requirements of this Section.
- I. Maintenance Data: For inclusion in closeout maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Manufacturer/Source: Obtain each type of glass product from a single primary glass manufacturer and a single manufacturer/fabricator for each glass product type.
 - 1. For glass sputter-coated with solar-control low-e coatings, obtain glass products in fabricated units from a manufacturer/fabricator certified by the primary glass manufacturer.
- B. Installer Qualifications: Experienced Installer with minimum of 5 successful completed projects of similar materials and scope, approved by glass product manufacturer/fabricator.
- C. Preconstruction Adhesion and Compatibility Testing: Submit glass units, glazing materials, and glass-framing members with applicable finish to elastomeric glazing sealant manufacturer for determination of sealant compatibility, priming, and preparation requirements for optimum adhesion and performance.
- D. Glazing for Fire-Rated Door and Window Assemblies: Glazing tested per NFPA 252 and NFPA 257, as applicable, for assemblies complying with NFPA 80 and listed and labeled per requirements of authorities having jurisdiction.
- E. Safety Glazing Products: Comply with size, glazing type, location, and testing requirements of 16 CFR 1201 for Category I and II glazing products, and requirements of authorities having jurisdiction.
- F. Glazing Industry Publications: Comply with glass product manufacturers' recommendations and the following:
 - 1. GANA Publications: GANA Laminated Division's 'Laminated Glass Design Guide' and GANA's 'Glazing Manual.'

- 2. IGMA Publication for Insulating Glass: IGMA TM-3000, 'Glazing Guidelines for Sealed Insulating Glass Units.'
- G. Insulating-Glass Certification Program: Indicate compliance with requirements of Insulating Glass Certification Council on applicable glazing products.
- H. Mockups: Prior to installing glazing, build mockups to demonstrate materials and workmanship. Coordinate with mockup requirements of related sections.
- I. Preinstallation Conference: Conduct conference at Project site in compliance with Division 01 requirements.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage.
 - 1. Schedule delivery to minimize time on site for storage of materials, without affecting sequence of construction operations.
- B. Protect glazing materials during shipping, handling, and storage to prevent breakage, scratching, damage to seals, or other visible damage.
- C. Deliver, unload, store, and erect glazing materials without exposing panels to damage from construction operations.
- D. Comply with manufacturer's venting and sealing recommendations for shipping and handling of insulating glass units exposed to substantial altitude change.

1.9 WARRANTY

- A. Warranty for Coated-Glass Products: Manufacturer's standard form, signed by coated-glass product primary manufacturer or manufacturer/fabricator, as applicable, agreeing to replace coated-glass units that display peeling, cracking, and other deterioration in metallic coating under normal use, within 10 years of date of Substantial Completion.
- B. Warranty for Laminated Glass: Manufacturer's standard form, signed by laminated-glass product manufacturer/fabricator, agreeing to replace laminated-glass units that display edge separation, delamination, and blemishes exceeding those allowed by ASTM C 1172, within five years of date of Substantial Completion.
- C. Warranty for Insulating Glass: Manufacturer's standard form, signed by insulating-glass product manufacturer/fabricator, agreeing to replace insulating-glass units that exhibit failure of hermetic seal under normal use evidenced by the obstruction of vision by dust,

moisture, or film on interior surfaces of glass, within 10 years of date of Substantial Completion.

- D. Installer's Warranty: Form acceptable to Owner, signed by glass product Installer, agreeing to replace glass products that deteriorate, or that exhibit damage or deterioration of glass or glazing products due to faulty installation, within 2 years of date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Manufacturer: Vitro Architectural Glass.
- B. Subject to the requirements specified herein, other manufacturers offering acceptable products may include, but are not limited to:
 - 1. Cardinal
 - 2. AGC Glass North America
 - 3. Pilkington
 - 4. Oldcastle Building Envelope

2.2 GLASS PRODUCTS

- A. Basis of Design Product: Vitro Architectural Glass, Starphire, Acuity
- B. General: Refer to Architectural drawings for glass types, locations, and additional information.
- C. Annealed Float Glass, General: ASTM C1036, Type I, Quality-Q3, class indicated.
- D. Annealed Ultra-Clear (Low Iron) for Starphire, Low Iron for Acuity Float Glass: Class I (clear).
- E. Heat-Treated Float Glass, Heat-Strengthened: ASTM C1048; Type I (transparent flat glass); Quality-Q3; Kind HS, of class and condition indicated: where indicated, where needed to resist thermal stresses and where required to comply with performance requirements.
- F. Heat-Treated Float Glass, Fully Tempered: ASTM C1048; Type I (transparent flat glass); Quality-Q3; Kind FT, of class and condition indicated: where safety glass is indicated. Safety glazing must comply with ANSI Z97.1 and CPSC 16CFR-1201
- G. Pyrolytic-Coated Float Glass: ASTM C1376, float glass with metallic-oxide coating applied by pyrolytic deposition process during primary glass product manufacture.

- H. Sputter-Coated Float Glass: ASTM C1376, float glass with metallic-oxide or -nitride coating deposited by vacuum deposition process following primary glass product manufacture.
- I. Ceramic-Coated Vision Glass: Float glass with silk-screened ceramic enamel application, per ASTM C1048, Condition B, Type I, Quality-Q3, and Specification No. 95-1-31 in GANA 'Engineering Standards Manual.'
- J. Ceramic-Coated Spandrel Glass: ASTM C1048, Condition B, Type I, Quality-Q3 and GANA 'Engineering Standards Manual' 66-9-20 Specification for Heat-Strengthened or Fully Tempered Ceramic Enameled Spandrel Glass for Use in Building Window/Curtain Walls and Other Architectural Applications.
- K. Coated Spandrel Float Glass: Float glass complying with ASTM C1048, GANA 'Engineering Standards Manual' 89-1-6 Specification for Environmental Durability of Fully Tempered or Heat-Strengthened Spandrel Glass with Applied Opacifier and other requirements specified, with manufacturer's standard opacifier material on coated second surface of lites.
- L. Laminated Glass: ASTM C1172, with manufacturer's standard polyvinyl butyral or cured resin interlayer.
- M. Insulating-Glass Units: Factory-assembled units consisting of dual-sealed lites of glass separated by a dehydrated interspace, with manufacturer's standard spacer material and construction, per ASTM E2190.

2.3 ACCESSORY MATERIALS

- A. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- B. Glazing Tape: Butyl-based elastomeric tape with integral resilient tube spacer, 10 to 15 Shore A durometer hardness, black color, coiled on release paper; widths required for specified installation, complying with ASTM C1281 and AAMA 800 for application.
- C. Glazing Tape: Closed cell polyvinyl chloride foam, maximum water absorption by volume 2 percent, designed for 25 percent compression percent for air barrier and vapor retarder seal, black color, coiled on release paper over adhesive on two sides; widths required for specified installation, and complying with AAMA 800.

- D. Glazing Gaskets:
1. Dense Compression Gaskets: ASTM C 864, neoprene or EPDM, or ASTM C1115, silicone or thermoplastic polyolefin rubber, as recommended by glazing product manufacturer for application, molded or extruded shape to fit glazing channel retaining slot; black color.
 2. Soft Compression Gaskets: ASTM C509, Type II, black, molded or extruded, neoprene, EPDM, silicone or thermoplastic polyolefin rubber, of profile and hardness required to maintain watertight seal.
- E. Setting Blocks: ASTM C864, neoprene, 80 to 90 Shore A durometer hardness; length 4 inches, width of glazing rabbet space less 1/16 inch, height required for glazing method, pane weight, and pane area.
- F. Spacer Shims: ASTM C864, neoprene, 50 to 60 Shore A durometer hardness; length 3 inches, one half height of glazing stop, thickness required for application, one face self-adhesive.
- G. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- H. Glazing Sealants: ASTM C920, type recommended by glazing product manufacturer for application indicated, complying with requirements of Division 07 Section 'Joint Sealants,' color as selected by Architect.
- I. Cylindrical Glazing Sealant Backing: ASTM C1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

2.4 FABRICATION OF GLAZING UNITS, GENERAL

- A. Fabricate glazing units in dimensions required, with edge and face clearances, edge and surface conditions, and bite in accordance with glazing product manufacturer/fabricator's instructions and referenced glazing publications.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that glazing channels are clean and ready to accept glazing installation, and that weeps are unobstructed. Confirm that minimum required face and edge clearances will be maintained. Do not proceed with glazing until unsatisfactory conditions have been corrected.

- B. Examine glazing units prior to setting. Reject units that display edge or face damage that may impede performance of unit or that will be visible when installed.

3.2 PREPARATION

- A. Clean glazing channels with recommended solvent and wipe dry. Apply primers to joint surfaces to ensure adhesion of sealants, unless preconstruction sealant-substrate testing indicates no primer is required.

3.3 GLAZING INSTALLATION

- A. General: Install glass and glazing materials in accordance with instructions of manufacturers and requirements of GANA Glazing Manual.
 - 1. Install setting blocks of size and in location required by glass manufacturer. Set blocks in bed of approved sealant.
 - 2. Provide spacers for glass lites as recommended, based upon size of glass unit.
 - 3. Comply with glass manufacturer's limits on edge pressures.
 - 4. Ensure that glazing units are set with proper and consistent orientation of glass units toward interior and exterior.
 - 5. Provide edge blocking where recommended.
 - 6. Install sealants in accordance with requirements of Division 07 Section 'Joint Sealants.'
- B. Gasket Glazing: Fabricate gaskets to fit openings exactly. Allow for stretching of gaskets during installation.
- C. Set soft compression gasket against fixed stop or frame, secure, with bonded miter cut joints at corners.
- D. Set glass lites centered in openings on setting blocks.
- E. Install removable stops, and insert dense compression gaskets at corners, working toward centers of lites, compressing glass against soft compression gaskets and to produce a weathertight seal. Seal joints in gaskets. Allow gaskets to protrude past face of glazing stops.

3.4 CLEANING AND PROTECTION

- A. Remove packaging and construction debris and legally dispose of off-site.
- B. Clean up installation area and sweep, dust or wipe material to remove any dirt, dust or debris.

- C. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and comply with their documented instructions.
- D. Repair or replace defaced or damaged finishes caused by work of this section.
- E. Protect installed glass from damage. Attach streamers or warning tape to framing members, away from contact with glass. Remove nonpermanent labels.
- F. Protect glass from contact with contaminating substances during construction. Immediately clean glass exposed to contamination using methods recommended by glass manufacturer.
- G. Within 5 working days prior to inspection for Substantial Completion, clean all exposed glass surfaces using methods recommended by manufacturer. Remove glazing compounds from framing surfaces.
- H. Remove and replace broken or damaged glass.

END OF SECTION 088000

SECTION 090561 - COMMON WORK RESULTS FOR FLOORING PREPARATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. This section applies to all floors identified in the contract documents as to receive the following types of floor coverings:
 - 1. Resilient tile and sheet.
 - 2. Carpet tile.
 - 3. Thin-set ceramic tile and stone tile.
- B. Testing of existing concrete floor slabs for moisture and alkalinity (pH) has already been conducted; test report is attached.
- C. Remedial floor coatings.

1.2 PRICE AND PAYMENT PROCEDURES

- A. Unit Price for Remedial Floor Coating: Do not include the cost of the floor coating in the base bid; state on the bid form the unit price per square foot for the floor coating, installed, in the event such remediation is required.
 - 1. Base the unit price on the assumption that the floor area to be treated is primarily open, not divided into rooms and corridors.
 - 2. Base the unit price on a total quantity calculated by assuming that only 75 of the flooring will require the alternate adhesive.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate scheduling of cleaning and testing, so that preliminary cleaning has been completed for at least 24 hours prior to testing.

1.4 SUBMITTALS

- A. Visual Observation Report: For existing floor coverings to be removed.
- B. Floor Covering and Adhesive Manufacturers' Product Literature: For each specific combination of substrate, floor covering, and adhesive to be used; showing:
 - 1. Moisture and alkalinity (pH) limits and test methods.
 - 2. Manufacturer's required bond/compatibility test procedure.
- C. Testing Agency's Report:
 - 1. Description of areas tested; include floor plans and photographs if helpful.

2. Summary of conditions encountered.
3. Moisture and alkalinity (pH) test reports.
4. Copies of specified test methods.
5. Recommendations for remediation of unsatisfactory surfaces.
6. Submit report to Architect.
7. Submit report not more than two business days after conclusion of testing.

D. Adhesive Bond and Compatibility Test Report.

1.5 QUALITY ASSURANCE

- A. Moisture and alkalinity (pH) testing shall be performed by an independent testing agency employed and paid by Contractor.
- B. Contractor may perform adhesive and bond test with his own personnel or hire a testing agency.
- C. Testing Agency Qualifications: Independent testing agency experienced in the types of testing specified.
 1. Submit evidence of experience consisting of at least 3 test reports of the type required, with project Owner's project contact information.
- D. Contractor's Responsibility Relating to Independent Agency Testing:
 1. Provide access for and cooperate with testing agency.
 2. Confirm date of start of testing at least 10 days prior to actual start.
 3. Allow at least 4 business days on site for testing agency activities.
 4. Achieve and maintain specified ambient conditions.
 5. Notify Architect when specified ambient conditions have been achieved and when testing will start.
- E. Remedial Coating Installer Qualifications: Company specializing in performing work of the type specified in this section, trained by or employed by coating manufacturer, and able to provide at least 3 project references showing at least 3 years' experience installing moisture emission coatings.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, handle, and protect products in accordance with manufacturer's instructions and recommendations.
- B. Deliver materials in manufacturer's packaging; include installation instructions.
- C. Keep materials from freezing.

1.7 FIELD CONDITIONS

- A. Maintain ambient temperature in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 65 degrees F or more than 85 degrees F.
- B. Maintain relative humidity in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 40 percent and not more than 60 percent.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Patching Compound: Floor covering manufacturer's recommended product, suitable for conditions, and compatible with adhesive and floor covering. In the absence of any recommendation from flooring manufacturer, provide a product with the following characteristics:
 - 1. Cementitious moisture-, mildew-, and alkali-resistant compound, compatible with floor, floor covering, and floor covering adhesive, and capable of being feathered to nothing at edges.
 - 2. Compressive Strength: 3000 psi, minimum, after 28 days, when tested in accordance with ASTM C109/C109M or ASTM C472, whichever is appropriate.
- B. Alternate Flooring Adhesive: Floor covering manufacturer's recommended product, suitable for the moisture and pH conditions present; low-VOC. In the absence of any recommendation from flooring manufacturer, provide a product recommended by adhesive manufacturer as suitable for substrate and floor covering and for conditions present.
- C. Remedial Floor Coating: Single- or multi-layer coating or coating/overlay combination intended by its manufacturer to resist water vapor transmission to degree sufficient to meet flooring manufacturer's emission limits, resistant to the level of alkalinity (pH) found, and suitable for adhesion of flooring without further treatment.
 - 1. Thickness: As required for application and in accordance with manufacturer's installation instruction.
 - 2. If testing agency recommends any particular products, use one of those.

PART 3 - EXECUTION

3.1 CONCRETE SLAB PREPARATION

- A. Perform following operations in the order indicated:
 - 1. Preliminary cleaning.
 - 2. Moisture vapor emission tests; 3 tests in the first 1000 square feet and one test in each additional 1000 square feet, unless otherwise indicated or required by flooring manufacturer.
 - 3. Internal relative humidity tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
 - 4. Alkalinity (pH) tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
 - 5. Specified remediation, if required.
 - 6. Patching, smoothing, and leveling, as required.
 - 7. Other preparation specified.
 - 8. Adhesive bond and compatibility test.
 - 9. Protection.
- B. Remediations:
 - 1. Active Water Leaks or Continuing Moisture Migration to Surface of Slab: Correct this condition before doing any other remediation; re-test after correction.
 - 2. Excessive Moisture Emission or Relative Humidity: If an adhesive that is resistant to the level of moisture present is available and acceptable to flooring manufacturer, use that adhesive for installation of the flooring; if not, apply remedial floor coating over entire suspect floor area.
 - 3. Excessive Alkalinity (pH): If remedial floor coating is necessary to address excessive moisture, no additional remediation is required; if not, if an adhesive that is resistant to the level present is available and acceptable to the flooring manufacturer, use that adhesive for installation of the flooring; otherwise, apply a skim coat of specified patching compound over entire suspect floor area.

3.2 PRELIMINARY CLEANING

- A. Clean floors of dust, solvents, paint, wax, oil, grease, asphalt, residual adhesive, adhesive removers, film-forming curing compounds, sealing

compounds, alkaline salts, excessive laitance, mold, mildew, and other materials that might prevent adhesive bond.

- B. Do not use solvents or other chemicals for cleaning.

3.3 MOISTURE VAPOR EMISSION TESTING

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.
- C. Test in accordance with ASTM F1869 and as follows.
- D. Plastic sheet test and mat bond test may not be substituted for the specified ASTM test method, as those methods do not quantify the moisture content sufficiently.
- E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if test values exceed 3 pounds per 1000 square feet per 24 hours.
- F. Report: Report the information required by the test method.

3.4 INTERNAL RELATIVE HUMIDITY TESTING

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.
- C. Test in accordance with ASTM F2170 Procedure A and as follows.
- D. Testing with electrical impedance or resistance apparatus may not be substituted for the specified ASTM test method, as the values determined are not comparable to the ASTM test values and do not quantify the moisture content sufficiently.
- E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if any test value exceeds 75 percent relative humidity.
- F. Report: Report the information required by the test method.

3.5 ALKALINITY TESTING

- A. Where the floor covering manufacturer's requirements conflict with either the

referenced test method or this specification, comply with the manufacturer's requirements.

- B. The following procedure is the equivalent of that described in ASTM F710, repeated here for the Contractor's convenience.
- C. Use a wide range alkalinity (pH) test paper, its associated chart, and distilled or deionized water.
- D. Place several drops of water on a clean surface of concrete, forming a puddle approximately 1 inch in diameter. Allow the puddle to set for approximately 60 seconds, then dip the alkalinity (pH) test paper into the water, remove it, and compare immediately to chart to determine alkalinity (pH) reading.
- E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if alkalinity (pH) test value is over 10.

3.6 PREPARATION

- A. See individual floor covering section(s) for additional requirements.
- B. Comply with requirements and recommendations of floor covering manufacturer.
- C. Fill and smooth surface cracks, grooves, depressions, control joints and other non-moving joints, and other irregularities with patching compound.
- D. Do not fill expansion joints, isolation joints, or other moving joints.

3.7 ADHESIVE BOND AND COMPATIBILITY TESTING

- A. Comply with requirements and recommendations of floor covering manufacturer.

3.8 APPLICATION OF REMEDIAL FLOOR COATING

- A. Comply with requirements and recommendations of coating manufacturer.

3.9 PROTECTION

- A. Cover prepared floors with building paper or other durable covering.

END OF SECTION 090561

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

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. Section Includes:
 - 1. Non-load-bearing steel framing systems for interior partitions.
 - 2. Suspension systems for interior ceilings and soffits.
 - 3. Grid suspension systems for gypsum board ceilings.

1.3 RELATED REQUIREMENTS

- A. Section 092900 - Gypsum Board.

1.4 SUBMITTALS

- A. Product Data: For each type of product.
- B. Sustainable Design Submittals:
 - 1. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.
- C. Product Certificates: For each type of code-compliance certification for studs and tracks.
- D. Evaluation Reports: For embossed, high-strength steel studs and tracks firestop tracks post-installed anchors and power-actuated fasteners, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

1.5 QUALITY ASSURANCE

- A. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Certified Steel Stud Association, the Steel Framing Industry Association, or the Steel Stud Manufacturers Association.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings, according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.
- C. Horizontal Deflection: For composite wall assemblies, limited to 1/240 of the wall height based on horizontal loading of 5 lbf/sq. ft.

2.2 METAL FRAMING SYSTEMS

- A. Framing Members, General: Comply with ASTM C754 for conditions indicated.
 - 1. Steel Sheet Components: Comply with ASTM C645 requirements for steel unless otherwise indicated.
 - 2. Protective Coating: ASTM A653/A653M, G60, hot-dip galvanized unless otherwise indicated.
- B. Studs and Tracks: ASTM C645. Use either conventional steel studs and tracks or embossed, high-strength steel studs and tracks.
 - 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. CEMCO; California Expanded Metal Products Co.
 - b. ClarkDietrich Building Systems.
 - c. MarinoWARE.
 - d. MRI Steel Framing, LLC.
 - 2. Minimum Base-Steel Thickness: As required by performance requirements for horizontal deflection.
 - 3. Depth: As indicated on Architectural partition schedule.
- C. Embossed, High Strength Steel Studs and Tracks: Roll-formed and embossed with surface deformations to stiffen the framing members so that they are structurally comparable to conventional ASTM C645 steel studs and tracks.

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. CEMCO; California Expanded Metal Products Co.
 - b. ClarkDietrich Building Systems.
 - c. MarinoWARE.
 2. Minimum Base-Steel Thickness: As required by horizontal deflection performance requirements.
 3. Depth: As indicated on Drawings.
- D. Slip-Type Head Joints: Where indicated, provide one of the following:
1. Clip System: Clips designed for use in head-of-wall deflection conditions that provide a positive attachment of studs to tracks while allowing 2-inch minimum vertical movement.
 - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) CEMCO; California Expanded Metal Products Co.; Deflex Clips.
 - 2) ClarkDietrich Building Systems;
 - 3) Fire Trak Corp; PosiKlip.
 - 4) Steel Network, Inc. (The); VertiClip SLD Series.
 - 5) Super Stud Building Products Inc.; Deflection Clips.
 2. Single Long-Leg Track System: ASTM C645 top track with 2-inch- deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top track and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
 3. Double-Track System: ASTM C645 top outer tracks, inside track with 2-inch- deep flanges in thickness not less than indicated for studs and fastened to studs, and outer track sized to friction-fit over inner track.
 4. Deflection Track: Steel sheet top track manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.

- a. Products: available products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) BlazeFrame Industries; Bare Slotted Track (BST/BST 2).
 - 2) CEMCO; California Expanded Metal Products Co.; CST Slotted Deflection Track.
 - 3) ClarkDietrich Building Systems; SLP-TRK Slotted Deflection Track.
 - 4) Metal-Lite; The System.
- E. Firestop Tracks: Top track manufactured to allow partition heads to expand and contract with movement of structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. BlazeFrame Industries; Intumescent Framing, Fire Stop System.
 - b. CEMCO; California Expanded Metal Products Co.; FAS Track.
 - c. ClarkDietrich Building Systems; BlazeFrame.
 - d. Fire Trak Corp; Fire Trak System attached to studs with Fire Trak Posi Klip.
- F. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width 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. ClarkDietrich Building Systems.
 - b. MRI Steel Framing, LLC.
 - 2. Minimum Base-Steel Thickness: 0.0329 inch.
- G. Cold-Rolled Channel Bridging: Steel, 0.0538-inch minimum base-steel thickness, with minimum 1/2-inch- wide flanges.
 - 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. ClarkDietrich Building Systems.
 - b. MRI Steel Framing, LLC.

2. Depth: As indicated on Drawings.
 3. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch- thick, galvanized steel.
- H. Hat-Shaped, Rigid Furring Channels: ASTM C645.
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. ClarkDietrich Building Systems.
 - b. MRI Steel Framing, LLC.
 2. Depth: As indicated on Drawings.
- I. Resilient Furring Channels: 1/2-inch- deep, steel sheet members designed to reduce sound transmission.
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. ClarkDietrich Building Systems.
 - b. MRI Steel Framing, LLC.
 2. Configuration: hat shaped.
- J. Cold-Rolled Furring Channels: 0.053-inch uncoated-steel thickness, with minimum 1/2-inch- wide flanges.
1. Depth: As indicated on Drawings.
- K. Furring Brackets: Adjustable, corrugated-edge-type steel sheet with minimum uncoated-steel thickness of 0.0329 inch.
- L. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.062-inch- diameter wire, or double strand of 0.048-inch- diameter wire.
- M. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum uncoated-steel thickness of 0.0179 inch, and depth required to fit insulation thickness 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. ClarkDietrich Building Systems.

- b. MRI Steel Framing, LLC.

2.3 ACCESSORY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
 - 1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide one of the following:
 - 1. Asphalt-Saturated Organic Felt: ASTM D226, Type I (No. 15 asphalt felt), nonperforated.
 - 2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.
 - 1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.
- B. Coordination with Sprayed Fire-Resistive Materials:
 - 1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling tracks to surfaces indicated to receive sprayed fire-resistive materials.
 - a. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.
 - 2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing.

- a. Do not reduce thickness of fire-resistive materials below that are required for fire-resistance ratings indicated.
- b. Protect adjacent fire-resistive materials from damage.

3.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C754.
 - 1. Gypsum Plaster Assemblies: Also comply with requirements in ASTM C841 that apply to framing installation.
 - 2. Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C1063 that apply to framing installation.
 - 3. Gypsum Veneer Plaster Assemblies: Also comply with requirements in ASTM C844 that apply to framing installation.
 - 4. Gypsum Board Assemblies: Also comply with requirements in ASTM C840 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.4 INSTALLATION, FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
 - 1. Single-Layer Application: As required by horizontal deflection performance requirements unless otherwise indicated.
 - 2. Multilayer Application: As required by horizontal deflection performance requirements unless otherwise indicated.
 - 3. Tile Backing Panels: As required by horizontal deflection performance requirements unless otherwise indicated.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.

- D. Install tracks at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.
1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb unless otherwise indicated.
 - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
 - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
 3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
 4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
 - a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
 5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
- E. Z-Shaped Furring Members:
1. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

2. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches from corner and cut insulation to fit.
- F. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

3.5 CLEANING AND REPAIR

- A. Remove packaging and construction debris and legally dispose of off-site.
- B. Clean up installation area and sweep, dust or wipe material to remove any dirt, dust, metal shavings, and other debris.
- C. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning recommendations and comply with their documented instructions.
- D. Repair or replace defaced or damaged finishes caused by work of this section.

END OF SECTION 092216

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Interior gypsum board.
 - 2. Glass mat panels (tile backer board).
- B. Related Requirements:
 - 1. Section 092216 - Non-Structural Metal Framing for non-structural steel framing and suspension systems that support gypsum board panels.
 - 2. Section 079200 - Joint Sealants.

1.3 SUBMITTALS

- A. Product Data: For the following:
 - 1. Gypsum board, Type X.
 - 2. Gypsum ceiling board.
 - 3. Gypsum board, Type C.
 - 4. Glass-mat panels with moisture and mold resistance, Type X.
 - 5. Aluminum trim.
 - 6. Joint treatment materials.
 - 7. Acoustical sealant.
- B. Samples: For the following products:
 - 1. Trim Accessories: Full-size Sample in 12-inch- long length for each trim accessory indicated.
- C. Samples for Verification: For the following products:
 - 1. Trim Accessories: Full-size Sample in 12-inch- long length for each trim accessory indicated.

1.4 QUALITY ASSURANCE

- A. Mockups: Build mockups of at least 100 sq. ft. in surface area to demonstrate aesthetic effects and to set quality standards for materials and execution.
 - 1. Build mockups for the following:
 - a. Each level of gypsum board finish indicated for use in exposed locations.
 - b. Glass-mat panels as substrate for FRP at damp locations
 - 2. Apply or install final decoration indicated, including painting and wallcoverings, on exposed surfaces for review of mockups.
 - 3. Simulate finished lighting conditions for review of mockups.
 - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.
- B. Do not install panels that are wet, moisture damaged, and mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E119 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

- A. Gypsum Board, Type X: ASTM C1396/C1396M.
 - 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. Basis-of-Design: USG Corporation.
 - b. American Gypsum.
 - c. CertainTeed Corporation.
 - d. Georgia-Pacific Gypsum LLC.
 - e. National Gypsum Company.
 - 2. Thickness: 5/8 inch.
 - 3. Long Edges: Tapered.
- B. Gypsum Ceiling Board: ASTM C1396/C1396M.
 - 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. Basis-of-Design: USG Corporation.
 - b. American Gypsum.
 - c. CertainTeed Corporation.
 - d. Georgia-Pacific Gypsum LLC.
 - e. National Gypsum Company.
 - 2. Thickness: 1/2 inch.
 - 3. Long Edges: Tapered.

2.4 MOISTURE- AND MOLD-RESISTANT GLASS-MAT TYPE X GYPSUM PANEL

- A. ASTM C1658, Standard Specification for Glass Mat Gypsum Panels, for 1/2 in. (12.7 mm) Regular, 5/8 in. (15.9 mm) Type X and glass mat water-resistant gypsum panel
 - 1. Basis-of-Design: United States Gypsum Company (USG) Sheetrock Brand Glass-Mat Panels Mold Tough.
 - 2. UL Type Designation: 5/8 in. (15.9 mm): "SGX"
 - 3. ASTM E136 Noncombustibility: Meets
 - 4. ASTM E84 Surface-Burning Characteristics
 - a. Flame Spread: 5/8 in. (15.9 mm): 0

- b. Smoke Developed: 5/8 in. (15.9 mm): 0
 - c. Class A (Flame spread not greater than 25 and smoke developed not greater than 450): Meets
- 5. ASTM C473, Standard Test Methods for Physical Testing of Gypsum Panel Products
- 6. Core Hardness
 - 1) Field: 5/8 in. (Not less than 15 lbf (67 N): Meets
 - 2) End: 5/8 in. (Not less than 15 lbf (67 N): Meets
 - 3) Edge: 5/8 in. (Not less than 15 lbf (67 N): Meets
- b. Flexural Strength
 - 1) Parallel: 5/8 in. (Not less than 100 lbf (445 N): Meets
 - 2) Perpendicular: 5/8 in. (Not less than 140 lbf (623 N): Meets
- c. Nail Pull Resistance: 5/8 in. (Not less than 90 lbf (400 N): Meets
- d. Humidified Deflection: 5/8 in. (Not greater than 1/4 in. (6 mm): Meets
- e. Average Water Absorption (Not greater than 5% by weight after two-hour immersion): Meets
- 7. ASTM D3273, Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber: 10
- 8. Thickness: 5/8 in. (15.9 mm)
- 9. Length: 8-12 ft. (2438-3658 mm)
- 10. Width: 4 ft. (1219 mm)
- 11. Weight: 2.2 lb./sq. ft. (10.7 kg/sq. m.)
- 12. Edge: Tapered

2.5 TRIM ACCESSORIES

- A. Interior Trim: ASTM C1047.
 - 1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet.
 - 2. Shapes:
 - a. Cornerbead.
 - b. Bullnose bead.
 - c. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - d. L-Bead: L-shaped; exposed long flange receives joint compound.

- e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
- f. Expansion (control) joint.
- g. Curved-Edge Cornerbead: With notched or flexible flanges.
- h. Base-of-Wall Galvanized Moisture Barrier Trim: Galvanized-steel sheet, 2 inches high.
 - 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) VersaDry, LLC.
 - b) TrimTex.
 - c) Gordon Inc.

B. Aluminum Trim: Extruded accessories of profiles and dimensions 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. Flannery, Inc.
 - b. Fry Reglet Corporation.
 - c. Gordon, Inc.
 - d. Pittcon Industries.
 - e. Tamlyn.
- 2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B221, Alloy 6063-T5.
- 3. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified.

2.6 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C475/C475M.
- B. Joint Tape:
 - 1. Interior Gypsum Board: Paper.
- C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.

2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
3. Fill Coat: For second coat, use setting-type, sandable topping compound.
4. Finish Coat: For third coat, use setting-type, sandable topping compound.
5. Skim Coat: For final coat of Level 5 finish, use high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish.
6. Joint Compound for Backing Panels:
 - a. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.

2.7 AUXILIARY MATERIALS

- A. Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
 1. Adhesives shall have a VOC content of 50 g/L or less.
- C. Steel Drill Screws: ASTM C1002 unless otherwise indicated.
 1. Use screws complying with ASTM C954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION AND FINISHING OF PANELS, GENERAL

- A. Comply with ASTM C840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch- wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

3.3 INSTALLATION OF INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:

1. Type X: As indicated on Architectural partition schedule.
 2. Ceiling Type: Ceiling surfaces.
 3. Type C: Where indicated on Architectural partition schedule or required for specific fire-resistance-rated assembly indicated.
- B. Single-Layer Application:
1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
 2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.
 3. On Z-shaped furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
 4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- C. Multilayer Application:
1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
 2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.

3. On Z-shaped furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
4. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

3.4 INSTALLATION OF TILE BACKING PANELS

- A. Where tile backing panels abut other types of panels in same plane, shim surfaces if necessary to produce a uniform plane across panel surfaces.

3.5 INSTALLATION OF TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
 1. Cornerbead: Use at outside corners unless otherwise indicated.
 2. LC-Bead: Use at exposed panel edges.
 3. L-Bead: Use where indicated.
 4. U-Bead: Use at exposed panel edges where indicated.
 5. Curved-Edge Cornerbead: Use at curved openings.
- D. Aluminum Trim: Install in locations indicated on Drawings.

3.6 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840.

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
2. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
 - a. Primer and its application to surfaces are specified in Section 099000 - Painting and Coating.

3.7 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 093000 - TILING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes ceramic wall tiling.
 - 1. Porcelain Wall Tile
 - 2. Tile Transition Strips
 - 3. Tiling Accessory Materials

1.3 RELATED SECTIONS

- A. Section 079200 - Joint Sealants
- B. Section 092216 - Non-Structural Metal Framing
- C. Section 092900 - Gypsum Board

1.4 SUBMITTALS

- A. Submit under provisions of 013300 - Submittal Procedures.
- B. Product Schedule: Use product designations and room designations indicated on Architectural Drawings, finish plans and schedule.
- C. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories.
 - 1. Include instructions and recommendations for using grouts and adhesives.
- D. Samples: Mount tile and apply grout on two plywood panels, minimum 18 by 18 inches in size illustrating pattern, color variations, and grout joint size variations.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- F. Warranty: Provide written proof of warranty, on manufacturer's standard form, executed in Owner's name and for specified warranty period.
- G. Maintenance Data: For inclusion in closeout maintenance manuals. Include recommended cleaning methods, cleaning materials, and stain removal methods.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum ten years of documented experience.
- B. Installer Qualifications: Company specializing in performing tile installation, with minimum of five years of documented experience.
- C. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Mockup shall be provided for each tile type required on Project.
 - 2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- D. Pre-installation Conference:
 - 1. General contractor shall arrange a meeting not less than two weeks prior to starting work.
 - a. Attendance:
 - 1) General Contractor.
 - 2) Architect/Owner's Representative.
 - 3) Installer's Representative.
 - 4) All other affected installers.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage.
 - 1. Schedule delivery to minimize time on site for storage of materials, without affecting sequence of construction operations.
- B. Store materials to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects, and in strict accordance with manufacturer's recommendations.
 - 1. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting application.

1. Maintain material and substrate temperature between 65 and 85 deg F (18 and 30 deg C) during application and for not less than 24 hours after application.
- B. Do not install solvent-based products in an unventilated environment.
- C. Maintain ambient and substrate temperature of 50 degrees F during installation of mortar materials.

PART 2 - PRODUCTS

2.1 TILE PRODUCTS

- A. Refer to Architectural finish plans and schedule.

2.2 SETTING MATERIALS

- A. Organic Adhesive: ANSI A136.1, thinset mastic type.
 1. Use Type I in areas subject to prolonged moisture exposure.
 2. Products:
 - a. ARDEX Engineered Cements; ARDEX D14: www.ardexamericas.com.
 - b. Custom Building Products; ReliaBond Ceramic Tile Adhesive - Type 1: www.custombuildingproducts.com.
 - c. LATICRETE International, Inc; LATICRETE 15 Premium Mastic: www.laticrete.com.

2.3 GROUTING

- A. Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
 1. Applications: Use this type of grout where indicated and where no other type of grout is indicated.
 2. Color(s): Refer to Architectural finish plans and schedule.
 3. Products: Refer to Architectural finish plans and schedule.
- B. Epoxy Grout: ANSI A118.3 chemical resistant and water-cleanable epoxy grout.
 1. Applications: At wet locations and where indicated.
 2. Color(s): Refer to Architectural finish plans and schedule.
 3. Products: Refer to Architectural finish plans and schedule.

2.4 MAINTENANCE MATERIALS

- A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.
2. Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated.

2.5 ACCESSORY MATERIALS

- A. Tile Sealant: Gunnable, silicone, siliconized acrylic, or urethane sealant; moisture and mildew resistant type.
 1. Applications: Between tile and plumbing fixtures.
 2. Products:
 - a. ARDEX Engineered Cements; ARDEX SX: www.ardexamericas.com.
 - b. Custom Building Products; Commercial 100% Silicone Caulk: www.custombuildingproducts.com.
 - c. LATICRETE International, Inc; LATICRETE LATASIL: www.laticrete.com.
- B. Reinforcing Mesh: 2 by 2 inch size weave of 16/16 wire size; welded fabric, galvanized.
- C. Mesh Tape: 2 inch wide self-adhesive fiberglass mesh tape.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that project conditions and substrates are acceptable, to the installer, to begin installation of work of this section.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.
- C. Verify that required wall-mounted utilities are in correct location.
- D. Commencement of Work constitutes acceptance of conditions and substrates by installer.

3.2 PREPARATION

- A. Protect surrounding work from damage.
- B. Vacuum clean surfaces and damp clean.
- C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- D. Install waterproofing at walls in accordance with manufacturer's printed installation instructions. Pre-treat all penetrations prior to application of waterproofing.

3.3 INSTALLATION - GENERAL

- A. Install tile and grout in accordance with applicable requirements of ANSI A108.1a through ANSI A108.13, manufacturer's instructions, and TCNA (HB) recommendations.
- B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.
- E. Form internal angles square and external angles bullnosed.
- F. Sound tile after setting. Replace hollow sounding units.
- G. Keep control and expansion joints free of mortar, grout, and adhesive.
- H. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
- I. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.
- J. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.4 INSTALLATION - WATERPROOF MEMBRANES

- A. Install waterproof membrane to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness that is bonded securely to substrate.
- B. Allow waterproof membrane to cure and verify by testing that it is watertight before installing tile or setting materials over it.

3.5 INSTALLATION - WALL TILE

- A. Over coated glass mat backer board on studs, install in accordance with TCNA (HB) Method W245.
- B. Over gypsum wallboard on metal studs install in accordance with TCNA (HB) Method W223, thin-set with organic adhesive, unless otherwise indicated.

3.6 CLEANING AND PROTECTION

- A. Remove packaging and construction debris and legally dispose of off-site.
- B. Clean up installation area and sweep, dust or wipe material to remove any dirt, dust or debris.

- C. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and comply with their documented instructions.
- D. Replace defaced or damaged finishes caused by work of this section nor able to be cleaned.
- E. Remove and replace tile that is damaged or that does not match adjoining tile.
 - 1. Provide new matching units, installed as specified and in a manner to eliminate evidence of replacement.
- F. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Remove grout residue from tile as soon as possible.
 - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation.
 - 3. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned.
 - 4. Protect metal surfaces and plumbing fixtures from effects of cleaning.
 - 5. Flush surfaces with clean water before and after cleaning.
- G. Protection: Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
 - 1. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls.
 - 2. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

END OF SECTION 093000

SECTION 095123 - ACOUSTICAL TILE CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes acoustical panels and exposed suspension systems for interior ceilings.

1.3 RELATED REQUIREMENTS

- A. Section 079200 - Joint Sealants.
- B. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices to be cast in concrete.

1.4 PREINSTALLATION MEETING

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 DEFINITIONS

- A. AC: **Articulation Class**.
- B. CAC: **Ceiling Attenuation Class**.
- C. LR: **Light Reflectance coefficient**.
- D. NRC: **Noise Reduction Coefficient**

1.6 SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified, 6 inches in size.
- C. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of sizes indicated below:
 - 1. Acoustical Panels: Set of full-size samples of each type, color, pattern, and texture.
 - 2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch long Samples of each type, finish, and color.

3. Clips: Full-size hold-down clips.
- D. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 1. Ceiling suspension-system members.
 2. Structural members to which suspension systems will be attached.
 3. Method of attaching hangers to building structure.
 - a. Furnish layouts for cast-in-place anchors, clips, and other ceiling attachment devices whose installation is specified in other Sections.
 4. Carrying channels or other supplemental support for hanger-wire attachment where conditions do not permit installation of hanger wires at required spacing.
 5. Size and location of initial access modules for acoustical panels.
 6. Items penetrating finished ceiling and ceiling-mounted items including the following:
 - a. Lighting fixtures.
 - b. Diffusers.
 - c. Grilles.
 - d. Speakers.
 - e. Sprinklers.
 - f. Access panels.
 - g. Perimeter moldings.
 - h. Special Moldings.
 7. Show operation of hinged and sliding components covered by or adjacent to acoustical panels.
 8. Coordinate "Qualification Data" Paragraph below with qualification requirements in Division 01 section "Quality Requirements" and as may be supplemented in "Quality Assurance" Article.
- E. Qualification Data: For testing agency.
- F. Product Test Reports: For each acoustical panel ceiling, for tests performed by manufacturer and witnessed by a qualified testing agency.
- G. Evaluation Reports: For each acoustical panel ceiling suspension system and anchor and fastener type, from ICC-ES.

- H. Field quality-control reports.
- I. Maintenance Data: For finishes to include in maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Ceiling Units: Full-size panels equal to 2 percent of quantity installed.
 - 2. Suspension-System Components: Quantity of each exposed component equal to 2 percent of quantity installed.
 - 3. Hold-Down Clips: Equal to 2 percent of quantity installed.

1.8 QUALITY ASSURANCE

- A. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 - 1. Build mockup of typical ceiling area as shown on Drawings.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical panels, suspension-system components, and accessories carefully to avoid damaging units and finishes in any way.

1.10 COORDINATION

- A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies

1.11 FIELD CONDITIONS

- A. Environmental Limitations: Do not install acoustical tile ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations:
 - 1. Suspended Acoustical Tile Ceilings: Obtain each type of acoustical ceiling tile and its suspension system from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: Class A according to ASTM E1264.
 - 2. Smoke-Developed Index: 450 or less.
- B. Fire-Resistance Ratings: Comply with ASTM E119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Indicate design designations from UL or from the listings of another qualified testing agency.

2.3 ACOUSTICAL PANELS TYPE ACT-01

- A. Refer to Architectural; finish schedule for additional requirements.
- B. Basis of Design: Subject to compliance with project requirements, provide the following:
 - 1. USG Interiors, LLC, Radar Series.
 - a. Refer to Architectural finish schedule for additional requirements.
 - 2. Substitutions: Submit in accordance with Division 01.
- C. Classification: Provide ceiling panels complying with ASTM E1264 for type, form and pattern as follows:
 - 1. Type: III, mineral base with painted finish.
 - 2. Form: 2, water felted.
 - 3. Pattern: Refer to Architectural finish schedule.
- D. Color: Refer to Architectural finish schedule.

- E. LR: Not less than 0.84.
- F. NRC: Not less than 0.55.
- G. CAC: Not less than 35.
- H. Edge/Joint Detail: To be selected by Architect from manufacturer's full selection.
- I. Metal Suspension Grid: Basis-of-Design; USG DX/DXL
 - 1. Width: 15/16 inch (24 mm).
- J. Panel Thickness: 5/8 inch (15.8 mm).
- K. Module Size: Refer to Architectural finish schedule.
- L. Recycled Content: Up to 59%.
- M. VOC Emissions: Third party (GREENGUARD Gold) certified for low-emitting performance, meets California Department of Public Health's (CDPH) Standard Method v1.1.
- N. Panel Features:
 - 1. Biobased product that is USDA certified.
 - 2. Abuse Resistant, high durability and can be cleaned easily with a soft brush & vacuumed.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
- B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated, and comply with layout shown on reflected ceiling plans.
- B. Layout openings for penetrations centered on the penetrating items.

3.3 INSTALLATION

- A. Install acoustical panel ceilings according to ASTM C636/C636M, and manufacturer's written instructions.
 - 1. Fire-Rated Assembly: Install fire-rated ceiling systems according to tested fire-rated design.
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
 - 4. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
 - 5. Do not attach hangers to steel deck tabs.
 - 6. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 - 7. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
 - 8. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
- C. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
 - 1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
 - 2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends. Miter corners accurately and connect securely.

3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- D. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- E. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide precise fit.
 1. Arrange directionally patterned acoustical panels as follows:
 - a. Install panels in a basket-weave pattern.
 2. For reveal-edged panels on suspension-system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
 3. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.
 4. Install hold-down clips in areas indicated; space according to panel manufacturer's written instructions unless otherwise indicated.
 - a. Hold-Down Clips: Space 24 inches (610 mm) o.c. on all cross runners.
 5. Install clean-room gasket system in areas indicated, sealing each panel and fixture as recommended by panel manufacturer's written instructions.
 6. Protect lighting fixtures and air ducts according to requirements indicated for fire-resistance-rated assembly.

3.4 ERECTION TOLERANCES

- A. Suspended Ceilings: Install main and cross runners level to a tolerance of 1/8 inch in 12 feet, non-cumulative.
- B. Moldings and Trim: Install moldings and trim to substrate and level with ceiling suspension system to a tolerance of 1/8 inch in 12 feet, non-cumulative.

3.5 FIELD QUALITY CONTROL

- A. Special Inspections: Engage a qualified special inspector to perform the following special inspections:
 1. Periodic inspection during the installation of suspended ceiling grids according to ASCE/SEI 7.
- B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

- C. Perform the following tests and inspections of completed installations of acoustical panel ceiling hangers and anchors and fasteners in successive stages and when installation of ceiling suspension systems on each floor has reached 20 percent completion, but no panels have been installed. Do not proceed with installations of acoustical panel ceiling hangers for the next area until test results for previously completed installations of acoustical panel ceiling hangers show compliance with requirements.
 - 1. Within each test area, testing agency will select one of every 10 power-actuated fasteners and postinstalled anchors used to attach hangers to concrete and will test them for 200 lbf of tension; it will also select one of every two postinstalled anchors used to attach bracing wires to concrete and will test them for 440 lbf of tension.
 - 2. When testing discovers fasteners and anchors that do not comply with requirements, testing agency shall test those anchors not previously tested until 20 consecutively pass and then will resume initial testing frequency.
- D. Acoustical panel ceiling hangers, anchors, and fasteners will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports.

3.6 CLEANING AND PROTECTION

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.
- B. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.
- C. Remove packaging and construction debris and legally dispose of off-site.
- D. Clean up installation area and sweep, dust or wipe material to remove any dirt, dust or debris.
- E. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning recommendations and comply with their documented instructions.

- F. Repair or replace defaced or damaged finishes caused by work of this section.
- G. Protect finished work from construction activities until time of Substantial Completion.

END OF SECTION 095123

SECTION 096516 - RESILIENT SHEET FLOORING

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. Section includes the following:
 - 1. Resilient sheet flooring for commercial traffic.
 - 2. Resilient wall base, sanitary base, and accessories.
 - 3. Substrate preparation.

1.3 RELATED REQUIREMENTS

- A. Architectural Finish Schedule.

1.4 SUBMITTALS

- A. Submit under provisions of 013300 - Submittal Procedures.
- B. Product Data:
 - 1. Manufacturer's data sheets on each product to be used, including thickness, physical characteristics, and finish, and:
 - a. Finish manufacturer's data sheet showing physical and performance characteristics.
 - b. Storage and handling requirements and recommendations.
 - c. Fabrication instructions and recommendations.
 - d. Specimen warranty for finish, as specified herein.
- C. Shop Drawings: Project-specific shop drawings. Show layout and location of seams and transitions.
- D. Verification Samples: For each finish product specified, minimum size 12 inches square, representing actual product in color and texture.
- E. Installer's Qualifications.
- F. Certificates: Certifying that the products and work results of this section meet or exceed specified requirements.

- G. Maintenance Data: Care of finishes and warranty requirements.
- H. Executed Warranty: Submit warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.5 QUALITY ASSURANCE

- A. Single Source Responsibility: Procure all parts and components, including accessories, necessary for a complete, functional installation, from a single source, from a single manufacturer.
- B. Manufacturer Qualifications: Provide resilient flooring manufactured by a firm with a minimum of 10 years' experience with resilient flooring of type equivalent to those specified.
 - 1. Manufacturer's quality management system shall have ISO 9001:2000 approval.
 - 2. Manufacturer shall be capable of providing technical training and technical field service representation.
- C. Installer Qualifications: Acceptable to manufacturer of resilient flooring or INSTALL (International Standards & Training Alliance) resilient certified for the requirements of the project with a minimum of 4 years' experience with resilient flooring of type equivalent to those specified.
 - 1. Has obtained and maintained current credentials from manufacturer's training program.
- D. Pre-installation Conference:
 - 1. General contractor shall arrange a meeting not less than two weeks prior to starting work.
 - a. Attendance:
 - 1) General Contractor.
 - 2) Architect/Owner's Representative.
 - 3) Installer's Representative.
 - 4) All other affected installers.
 - b. Agenda:
 - 1) Establish condition and completeness of building substrate.
 - 2) Review manufacturers' installation instructions and warranty requirements.
 - 3) Review storage and handling procedures.

- 4) Review delivery truck transportation, parking, vertical transportation, schedule, personnel, installation of adjacent materials and substrate.
 - 5) Review procedures for protection of work and of adjacent construction.
- E. Mock-ups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 1. Build mockups for each substrate and finish texture indicated, including accessories.
 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage.
 1. Schedule delivery to minimize time on site for storage of materials, without affecting sequence of construction operations.
 2. Inspect for damage prior to acceptance.
- B. Store materials, in manufacturer's unopened packing, to prevent deterioration, and in strict accordance with manufacturer's recommendations.

1.7 SUSTAINABLE DESIGN REQUIREMENTS

- A. Flooring products shall:
 1. Contain no polyvinyl chloride or phthalate plasticizers.
 2. Contain no halogenated polymers.
 3. Contain no asbestos.

1.8 WARRANTY

- A. Provide manufacturer's standard warranty, on standard form and executed in Owner's name.

1.9 PROJECT CONDITIONS

- A. The installation area must be fully enclosed, weather tight, and climate controlled between 63°F and 75°F and 40% to 60% ambient relative humidity (RH) for at least 48 hours prior, during and 72 hours after installation (do not use gas fueled blowers). Dew

point must be avoided. The substrate must be at least 5°F above dew point to be considered acceptable.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design: Subject to compliance with requirements: Nora Systems, Norament Castello
 - 1. Substitutions: Refer to Section 012500 - Substitution Procedures.

2.2 PHYSICAL PROPERTIES

- A. ASTM Specification: ASTM F1344 Standard Specification for Rubber Floor Tile Type IB and Grade 2
- B. Material: Vulcanized rubber compound 926 with environmentally compatible color pigments that are free of toxic heavy metals (lead, cadmium, or mercury)
- C. Composition: Homogeneous rubber compound with a slightly marbleized design
- D. Color: As scheduled.
- E. Surface: Two-tone
- F. Back of Tile: Double-sanded smooth
- G. Material Size (ASTM F2055): ± 0.02 inches (± 0.5 mm) is required 39.53 inches by 39.53 inches (1004mm by 1004mm)
- H. Flammability (E648/NFPA 253): ≥ 0.45 watts/sq. cm for Class 1 is required NBSIR 75 950, 0.92
- I. Smoke Density (ASTM E662/NFPA 258): < 450 is required NBS, 267 (flaming) and 130 (non-flaming)
- J. Surface Burning (CAN/ULC-S102.2): FSC1 of 70 and SD of 470
- K. Slip Resistance (ASTM D2047): ≥ 0.5 is required
- L. Static coefficient of friction, dry 0.87, wet 0.93
- M. Static Generation (AATCC 134): < 1000 Volts at 20% RH

PART 3 - EXECUTION

3.1 GENERAL

- A. General Contractor Responsibilities:
 - 1. A subfloor that meets the requirements of ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring is required, or as detailed in the flooring manufacturer's installation instructions.

2. A secure storage area that is fully enclosed, weather tight, and climate controlled between 63°F and 75°F and 40% to 60% ambient relative humidity (RH) for at least 48-hours prior and during the installation, to acclimate all materials.
3. An installation area that is fully enclosed, weather tight, and climate controlled between 63°F and 75° and 40% to 60% ambient relative humidity (RH) for at least 48-hours prior, during, and 72-hours after installation (do not use gas fueled blowers).
4. Areas with direct prolonged exposure to sunlight shall be protected with the use of Low E glass doors, windows or facades that reduce the UV transmissions to less than 1%.

3.2 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
 1. Commencement of work constitutes acceptance of conditions and substrates by installer.

3.3 PREPARATION

- A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for application.

3.4 INSTALLATION

- A. General: Install in strict accordance with Manufacturer's written instructions.
- B. Do not allow traffic when using wet set adhesives for a minimum of 12-hours and prohibit rolling loads for 72-hours. All flooring shall be protected from damage during construction operations using Masonite, plywood, or a similar product.
 1. Before laying the panels, the flooring surface shall be free of all debris. Lay panels so that they are edge to edge and tape the joints to prevent movement and debris entrapment. Inspect the flooring before covering and after removal for final acceptance.
- C. Conduct post-installation cleaning after 72-hours for wet set adhesives.

3.5 CLEANING AND PROTECTION

- A. Remove surplus materials, rubbish and debris resulting from installation as work progresses.

- B. Upon completion of work, remove packaging and construction debris and legally dispose of off-site.
- C. Clean up installation area and sweep, dust or wipe material to remove any dirt, dust or debris.
- D. Repair or replace defacement or damage of existing work, caused by work of this section.
- E. Protect finished work from construction activities until time of Substantial Completion.

END OF SECTION 096516

SECTION 096623 - RESINOUS MATRIX TERRAZZO FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Thin-set, epoxy-resin terrazzo interior flooring.
 - 2. Divider Strips.
 - 3. Design Requirements.
- B. Related Requirements:
 - 1. Section 079200 - Joint Sealants for sealants installed with terrazzo.

1.3 SUBMITTALS

- A. Product Data: For each type of product.
- B. Sustainable Design Submittals:
 - 1. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.
 - 2. Product Data: For adhesives, indicating VOC content.
 - 3. Laboratory Test Reports: For adhesives and sealers, indicating compliance with requirements for low-emitting materials.
- C. Shop Drawings: Include terrazzo installation requirements. Include plans, sections, component details, and relationship to other work. Show layout of the following:
 - 1. Divider strips.
 - 2. Control-joint strips.
 - 3. Accessory strips.
 - 4. Abrasive strips.
 - 5. Stair treads, risers, and landings.
 - 6. Precast terrazzo jointing and edge configurations.
 - 7. Terrazzo patterns.

- D. Samples: For each exposed product and for each color and texture specified, 6 inches in size.
- E. Samples for Initial Selection: NTMA's "Terrazzo Color Palette" showing the full range of colors and patterns available for each terrazzo type.
- F. Samples for Verification: For each type, material, color, and pattern of terrazzo and accessory required showing the full range of color, texture, and pattern variations expected. Label each terrazzo Sample to identify manufacturer's matrix color and aggregate types, sizes, and proportions. Prepare Samples of same thickness and from same material to be used for the Work, in sizes indicated below:
 - 1. Terrazzo: 6-inch- square Samples.
 - 2. Accessories: 6-inch- long Samples of each exposed strip item required.
- G. Qualification Data: For Installer.
- H. Material Certificates: For each type of terrazzo material or product.
- I. Installer Certificates: Signed by manufacturers certifying that installers comply with requirements.
- J. Preinstallation moisture-testing reports.
- K. Maintenance Data: For terrazzo to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications:
 - 1. Engage an installer who is a contractor member of NTMA.
 - 2. Engage an installer who is certified in writing by terrazzo manufacturer as qualified to install manufacturer's products.
- B. Design Layout Review: Scope of terrazzo work includes complex design elements. Installer shall lay out design in the field, indicating dividers and locations of each terrazzo finish, for review and Approval of Architect.
 - 1. Final installation shall not commence until Architect's written approval of design layout is received.
- C. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to terrazzo including, but not limited to, the following:

- a. Inspect and discuss condition of substrate and other preparatory work performed by other trades.
 - b. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - c. Review special terrazzo designs and patterns.
 - d. Clarify requirements for layout review.
- D. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 - 1. Build mockups for terrazzo including accessories.
 - a. Size: Minimum 100 sq. ft. of typical poured-in-place flooring and base condition for each color and pattern in locations directed by Architect.
 - b. Include base and first three stair treads.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in supplier's original wrappings and containers, labeled with source's or manufacturer's name, material or product brand name, and lot number if any.
- B. Store materials in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting terrazzo installation.
- B. Field Measurements: Verify actual dimensions of construction contiguous with precast terrazzo by field measurements before fabrication.
- C. Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during terrazzo installation.

- D. Close spaces to traffic during terrazzo application and for not less than 24 hours after application unless manufacturer recommends a longer period.
- E. Control and collect water and dust produced by grinding operations. Protect adjacent construction from detrimental effects of grinding operations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. General: Refer to Architectural Finish Schedule for additional requirements.
- B. Source Limitations: Obtain primary terrazzo materials from single source from single manufacturer. Provide secondary materials including patching and fill material, joint sealant, and repair materials of type and from source recommended by manufacturer of primary materials.
- C. Source Limitations for Aggregates: Obtain each color, grade, type, and variety of granular materials from single source with resources to provide materials of consistent quality in appearance and physical properties.

2.2 PERFORMANCE REQUIREMENTS

- A. NTMA Standards: Comply with NTMA's written recommendations for terrazzo type indicated unless more stringent requirements are specified.

2.3 EPOXY-RESIN TERRAZZO

- A. Epoxy-Resin Terrazzo: Comply with manufacturer's written instructions for matrix and aggregate proportions and mixing.
 - 1. Basis-of-Design Manufacturer: Subject to compliance with requirements, provide products by: Sigma Marble Granite & Tile, Dallas Tx
 - 2. Subject to compliance with requirements, other manufacturers offering acceptable products may include, but are not limited to, the following:
 - a. Key Resin Company.
 - b. Master Terrazzo Technologies LLC.
 - c. Terrazzo & Marble Supply Companies.
- B. Mix Color and Pattern: Custom color match.
 - 1. Match Architect's samples for field color and accent colors.

C. Materials:

1. Moisture-Vapor-Emission-Control Membrane: Two-component, high-solids, high-density, low-odor, epoxy-based membrane-forming product produced by epoxy terrazzo manufacturer that reduces moisture emission from concrete substrate to not more than 3 lb of water/1000 sq. ft. in 24 hours.
2. Substrate-Crack-Suppression Membrane: Product of terrazzo-resin manufacturer, having minimum 120 percent elongation potential according to ASTM D 412.
 - a. Reinforcement: Fiberglass scrim.
3. Primer: Manufacturer's product recommended for substrate and use indicated.
4. Epoxy-Resin Matrix: Manufacturer's standard recommended for use indicated and in color required for mix indicated.
 - a. Physical Properties without Aggregates:
 - 1) Hardness: 60 to 85 per ASTM D 2240, Shore D.
 - 2) Minimum Tensile Strength: 3000 psi per ASTM D 638 for a 2-inch specimen made using a "C" die per ASTM D 412.
 - 3) Minimum Compressive Strength: 10,000 psi per ASTM D 695, Specimen B cylinder.
 - 4) Chemical Resistance: No deleterious effects by contaminants listed below after seven-day immersion at room temperature per ASTM D 1308.
 - a) Distilled water.
 - b) Mineral water.
 - c) Isopropanol.
 - d) Ethanol.
 - e) 0.025 percent detergent solution.
 - f) 1.0 percent soap solution.
 - g) 5 percent acetic acid.
 - h) 10 percent sodium hydroxide.
 - i) 10 percent hydrochloric acid.
 - j) 30 percent sulfuric acid.

- b. Physical Properties with Aggregates: For terrazzo blended according to manufacturer's recommendations with one part epoxy resin with three parts marble aggregate consisting of 60 percent No. 1 chips and 40 percent No. 0 chips that is ground and grouted to a 1/4-inch nominal thickness, and cured for 7 days at 75 deg F plus or minus 2 deg F and at 50 percent plus or minus 2 percent relative humidity.
 - 1) Flammability: Self-extinguishing, maximum extent of burning 1/4 inch according to ASTM D 635.
 - 2) Thermal Coefficient of Linear Expansion: 0.0025 inch/inch per deg F according to ASTM C 531.
- 5. Aggregates: Comply with NTMA gradation standards for mix indicated and contain no deleterious or foreign matter.
 - a. Abrasion and Impact Resistance: Less than 40 percent loss per ASTM C 131/C 131M.
 - b. 24-Hour Absorption Rate: Less than 0.75 percent.
 - c. Dust Content: Less than 1.0 percent by weight.
- 6. Finishing Grout: Resin based.

2.4 STRIP MATERIALS

- A. Thin-Set Divider Strips: L-type angle in depth required for topping thickness indicated.
 - 1. Material: White-zinc alloy.
- B. Heavy-Top Divider Strips: L-type angle in depth required for topping thickness indicated.
 - 1. Bottom-Section Material: Matching top-section material.
 - 2. Top-Section Material: White-zinc alloy.
 - 3. Top-Section Width: 1/8 inch 1/2 inch.
- C. Control-Joint Strips: Separate, double L-type angles, positioned back to back, that match material and color of divider strips and in depth required for topping thickness indicated.

- D. Accessory Strips: Match divider-strip width, material, and color unless otherwise indicated. Use the following types of accessory strips as required to provide a complete installation:
 - 1. Base-bead strips for exposed top edge of terrazzo base.
 - 2. Edge-bead strips for exposed edges of terrazzo.
 - 3. Nosings for terrazzo stair treads and landings.
- E. Abrasive Strips: Two-line Abrasive nosing strip and two-line abrasive inserts at nosings. Silicon carbide or aluminum oxide, or combination of both, in epoxy-resin binder and set in channel.
 - 1. Width: 1/2 inch.
 - 2. Depth: As required by terrazzo thickness.
 - 3. Length: 4 inches less than stair width.
 - 4. Color: As selected by Architect from full range of industry colors.

2.5 MISCELLANEOUS ACCESSORIES

- A. Strip Adhesive: Epoxy-resin adhesive recommended by adhesive manufacturer for this use.
 - 1. Adhesives shall have a VOC content of 70 g/L or less.
- B. Anchoring Devices:
 - 1. Strips: Provide mechanical anchoring devices or adhesives for strip materials as recommended by manufacturer and as required for secure attachment to substrate.
- C. Patching and Fill Material: Terrazzo manufacturer's resinous product approved and recommended by manufacturer for application indicated.
- D. Joint Compound: Terrazzo manufacturer's resinous product approved and recommended by manufacturer for application indicated.
- E. Resinous Matrix Terrazzo Cleaner: Chemically neutral cleaner with pH factor between 7 and 10 that is biodegradable, phosphate free, and recommended by sealer manufacturer for use on terrazzo type indicated.
- F. Sealer: Slip- and stain-resistant, penetrating-type sealer that is chemically neutral; does not affect terrazzo color or physical properties; and is recommended by sealer manufacturer.
 - 1. Surface Friction: Not less than 0.6 according to ASTM D 2047.

2. Acid-Base Properties: With pH factor between 7 and 10.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions, including levelness tolerances, have been corrected.

3.2 PREPARATION

- A. Clean substrates of substances, including oil, grease, and curing compounds, that might impair terrazzo bond. Provide clean, dry, and neutral substrate for terrazzo application.
- B. Concrete Slabs:
 1. Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with terrazzo.
 - a. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.
 - b. Repair damaged and deteriorated concrete according to terrazzo manufacturer's written instructions.
 - c. Use patching and fill material to fill holes and depressions in substrates according to terrazzo manufacturer's written instructions.
- C. Verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels according to manufacturer's written instructions.
- D. Preinstallation Moisture Testing:
 1. Testing Agency: Engage a qualified testing agency to perform tests.
 2. Moisture Testing: Perform tests so that each test area does not exceed 200 sq. ft., and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.

- a. Moisture-Vapor-Emission Test: Maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours when tested according to ASTM F 1869 using anhydrous calcium chloride.
 - b. Relative Humidity Test: Maximum 75 percent relative humidity measurement when tested according to ASTM F 2170 using in-situ probes.
- 3. Proceed with terrazzo installation only after concrete substrates pass moisture testing or after installation of moisture-vapor-emission-control membrane on substrate areas that fail testing.
- E. Moisture-Vapor-Emission-Control Membrane: Install according to manufacturer's written instructions.
 - 1. Install on concrete substrates that incorporate lightweight aggregates.
 - 2. Install concrete substrates that fail preinstallation moisture testing.
- F. Substrate-Crack-Suppression Membrane: Install to isolate and suppress substrate cracks according to manufacturer's written instructions.
 - 1. Prepare and prefill substrate cracks with membrane material.
 - 2. Install membrane to produce full substrate coverage in areas to receive terrazzo.
 - 3. Reinforce membrane with fiberglass scrim.
- G. Protect other work from water and dust generated by grinding operations. Control water and dust to comply with environmental protection regulations.
 - 1. Erect and maintain temporary enclosures and other suitable methods to limit water damage and dust migration and to ensure adequate ambient temperatures and ventilation conditions during installation.

3.3 EPOXY-RESIN TERRAZZO INSTALLATION

- A. Do not proceed with terrazzo application until on-site design layout is approved by Architect.
- B. Comply with NTMA's written recommendations for terrazzo and accessory installation.
- C. Strip Materials:
 - 1. Divider and Control-Joint Strips:
 - a. Locate divider strips in locations indicated.
 - b. Install control-joint strips back to back and directly above concrete-slab control joints.

- c. Install control-joint strips with 1/4-inch gap between strips, and install sealant in gap.
 - d. Install strips in adhesive setting bed without voids below strips, or mechanically anchor strips as required to attach strips to substrate, as recommended by strip manufacturer.
- 2. Accessory Strips: Install as required to provide a complete installation.
- 3. Abrasive Strips: Install with surface of abrasive strip positioned 1/16 inch higher than terrazzo surface.
- D. Apply primer to terrazzo substrates according to manufacturer's written instructions.
- E. Place, rough grind, grout, cure grout, fine grind, and finish terrazzo according to manufacturer's written instructions.
 - 1. Installed Thickness: As indicated on Drawings nominal.
 - 2. Terrazzo Finishing: Ensure that matrix components and fluids from grinding operations do not stain terrazzo by reacting with divider and control-joint strips.
 - a. Rough Grinding: Grind with 24-grit or finer stones or with comparable diamond abrasives. Follow initial grind with 60/80-grit stones or with comparable diamond abrasives.
 - b. Grouting: Before grouting, clean terrazzo with water, rinse, and allow to dry. Apply and cure epoxy grout.
 - c. Fine Grinding/Polishing: Delay fine grinding until heavy trade work is complete and construction traffic through area is restricted. Grind with 80 - grit stones or with comparable diamond abrasives until grout is removed from surface.
 - 3. Installation Tolerance: Limit variation in terrazzo surface from level to 1/4 inch in 10 feet; noncumulative.
- F. Install and finish poured-in-place terrazzo stairs at the same time the adjacent terrazzo flooring is installed.
- G. Install and finish poured-in-place terrazzo base at the same time the adjacent terrazzo flooring is installed.

3.4 REPAIR

- A. Cut out and replace terrazzo areas that evidence lack of bond with substrate. Cut out terrazzo areas in panels defined by strips and replace to match adjacent terrazzo, or repair panels according to NTMA's written recommendations, as approved by Architect.

3.5 CLEANING AND PROTECTION

- A. Cleaning:
 - 1. Remove grinding dust from installation and adjacent areas.
 - 2. Wash surfaces with cleaner according to NTMA's written recommendations and manufacturer's written instructions; rinse surfaces with water and allow them to dry thoroughly.
- B. Sealing:
 - 1. Seal surfaces according to NTMA's written recommendations.
 - 2. Apply sealer according to sealer manufacturer's written instructions.
- C. Protection: Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure that terrazzo is without damage or deterioration at time of Substantial Completion.

END OF SECTION 096623

SECTION 096813 - TILE CARPETING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes:
 - 1. Carpet tile, fully adhered.

1.3 RELATED REQUIREMENTS

- A. Section 017419 - Construction Waste Management and Disposal: Reclamation/Recycling of new carpet tile scrap.
- B. Section 090561 - Common Work Results for Flooring Preparation.

1.4 SUBMITTALS

- A. Submit under provisions of 013300 - Submittal Procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.
- C. Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.
- D. Submit two, 12 inch long samples of edge strip.
- E. Manufacturer's Installation Instructions: Indicate special procedures.
- F. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

2. Extra Carpet Tiles: Quantity equal to 3 percent of total installed of each color and pattern installed.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide flooring materials manufactured by a firm with a minimum of 10 years' experience with flooring materials of type equivalent to those specified.
- B. Provide flooring products, accessories and subfloor preparation products from one manufacturer to ensure color matching and compatibility.
 1. Provide secondary materials of type and from source recommended by manufacturer of primary materials.
- C. Manufacturer shall be capable of providing technical training and technical field service representation.
- D. Installer Qualifications: Company specializing in installing carpet with minimum 5 years experience.
- E. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- F. Pre-installation Conference:
 1. General contractor shall arrange a meeting not less than two weeks prior to starting work.
 - a. Attendance:
 - 1) General Contractor.
 - 2) Architect/Owner's Representative.
 - 3) Installer's Representative.
 - 4) All other affected installers.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage.
 1. Schedule delivery to minimize time on site for storage of materials, without affecting sequence of construction operations.

- B. Store materials to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects, and in strict accordance with manufacturer's recommendations.

- 1. Store materials in area of installation for minimum period of 24 hours prior to installation.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with manufacturer's written instructions regarding conditions affecting application.

1.8 WARRANTY

- A. Manufacturer shall furnish standard written warranty covering manufacturing defects.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. General: Refer to Architectural Finish Schedule for additional requirements.

2.2 MATERIALS

- A. Carpet Tile **(CP-01)**: Multi-level pattern cut/loop
 - 1. Product: Refer to Architectural finish schedule.
 - a. Size: 18 in x 36 in, unless noted otherwise on Architectural finish schedule.
 - b. Color and Pattern: As scheduled.
 - 2. Properties:
 - a. Fiber: Nylon
 - b. Dye Method: 100% Solution Dyed
 - c. ADA Compliance: >0.6, meets the recommended static coefficient of friction for accessible walking surfaces and routes
- B. Carpet Tile **(CP-02)**: Multi-level pattern cut/loop, hexagonal
 - 1. Product: Refer to Architectural finish schedule.
 - a. Size: 28.8 in x 24.9 in, unless noted otherwise on Architectural finish schedule.
 - b. Color and Pattern: As scheduled.
 - 2. Properties:
 - a. Fiber: Nylon
 - b. Dye Method: 100% Solution Dyed

- c. ADA Compliance: >0.6, meets the recommended static coefficient of friction for accessible walking surfaces and routes

2.3 ACCESSORY MATERIALS

- A. Sub-Floor Filler: White premix latex; type recommended by flooring material manufacturer.
- B. Adhesives: Acceptable to carpet tile manufacturer, compatible with materials being adhered.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that project conditions and substrates are acceptable, to the installer, to begin installation of work of this section.
 - 1. Verify that sub-floor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.
 - 2. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive carpet tile.
 - 3. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.
 - 4. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for flooring installation by testing for moisture and pH.
 - a. Test in accordance with Section 090561.
 - b. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.
 - 5. Verify that required floor-mounted utilities are in correct location.
- B. Commencement of Work constitutes acceptance of conditions and substrates by installer.

3.2 PREPARATION

- A. Prepare floor substrates for installation of flooring in accordance with Section 090561.

3.3 INSTALLATION

- A. Install carpet tile in accordance with manufacturer's instructions and CRI Carpet Installation Standard.
- B. Blend carpet from different cartons to ensure minimal variation in color match.
- C. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.

- D. Lay carpet tile in square pattern, with pile direction parallel to next unit, set parallel to building lines.
- E. Locate change of color or pattern between rooms under door centerline.
- F. Fully adhere carpet tile to substrate.
- G. Trim carpet tile neatly at walls and around interruptions.
- H. Complete installation of edge strips, concealing exposed edges.

3.4 CLEANING AND PROTECTION

- A. Remove packaging and construction debris and legally dispose of off-site.
- B. Clean up installation area and sweep, dust or wipe material to remove any dirt, dust or debris.
- C. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning recommendations and comply with their documented instructions.
- D. Repair or replace defaced or damaged finishes caused by work of this section.
- A. Perform the following operations immediately after installing carpet tile:
 - 1. Remove excess adhesive and other surface blemishes using cleaner recommended by carpet tile manufacturer.
 - 2. Remove yarns that protrude from carpet tile surface.
 - a. Replace tiles with excessive yarn damage.
 - 3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 096813

SECTION 097723 - FABRIC-WRAPPED ACOUSTICAL PANELS

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. Section includes the following:
 - 1. Fabric wrapped acoustical panels
 - 2. Mounting devices
 - 3. Installation of panels

1.3 RELATED REQUIREMENTS

- A. Section 014000 - Quality Requirements: Procedures for testing, inspection, mock-ups, reports, certificates; use of reference standards.
- B. Section 016000 - Product Requirements: Fundamental product requirements, substitutions and product options, delivery, storage, and handling.
- C. Section 017000 - Execution Requirements: Examination, preparation, and general installation procedures; preinstallation meetings; cutting and patching; cleaning and protection; starting of systems; demonstration and instruction; closeout procedures except payment procedures; requirements for alterations work.
- D. See Section 017419 - Construction Waste Management and Disposal.

1.4 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings:
 - 1. Show elevation of each separate wall scheduled to receive fabric wrapped panels.
 - 2. Indicate height and width of panels, panel thickness, core material, method of attachment, molding and any trim required.
 - 3. Indicate each type and color of fabric selected, panel core material and thickness.
- C. Samples: Submit two samples of each color/pattern of fabric specified, 12 x 12 inch in size, illustrating color, pattern, and texture.

- D. Certificate: Certify that products of this section meet or exceed specified requirements. Provide certification from panel manufacturer and fabric manufacturer that manufactured panels are in compliance with ASTM E82 and that panels have flame spread rating of 25 or less.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years of experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage.
 - 1. Deliver fabric wrapped wall panels after painting, wet work, grinding, and similar operations which could damage wall panels, have been completed in installation area.

1.7 WARRANTY

- A. Provide manufacturer's standard warranty, on standard form and executed in Owner's name.

1.8 PROJECT CONDITIONS

- A. Maintain temperatures and moisture conditions as recommended by fabric wrapped panel manufacturer from date of installation through remainder of construction period.
 - 1. Minimum requirements: 60-75° F, maximum relative humidity, 70%.

PART 2 - PRODUCTS

2.1 FABRIC WRAPPED ACOUSTICAL PANELS

- A. Core: 1/2", 1.0 lb./sq. ft., single piece, Homosote 400
 - 1. Sound Absorption: N.R.C. 0.80.
- B. Fabric: Refer to Architectural finish schedule
- C. Flame Spread: ASTM E84, 25 or less
- D. IBC Testing: Fabric shall pass requirements of IBC 803.1.2 for interior wall finishes and NFPA 101 Chapter 10.
- E. Mounting: Impaling clip/Adhesive.

2.2 FABRICATIONS

A. Shop Fabrication:

1. Panel width shall be equal or in patterns as shown on the drawings.
2. After cutting, fiberglass panel edge shall be chemically hardened.
3. Fabric material shall be stretched tight across panel face, free of wrinkles or rags, wrapped around all edges and onto the back a minimum of 1". Fabric shall be bonded to the panel face, edges, and back.
4. Attach mounting clips/fasteners for required mounting condition.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
 1. Commencement of work constitutes acceptance of conditions and substrates by installer.

3.2 PREPARATION

- A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for application.

3.3 INSTALLATION

- A. General:
 1. Install fabric wrapped wall panels in accordance with manufacturer's installation instructions.
 2. Joint tolerance and adjacent panel alignment: $\pm 1/16"$. All joints shall be plumb. Adjust end panel edges to fit adjacent abutting or matching surfaces.
- B. Impaling Clip Attachment:
 1. Use temporary leveling and support angle at bottom of panels for impaling/adhesive installation.
 2. Adhesively attach impaling clips to wall at the rate of one clip per 4 square feet of panel--minimum 8 clips per panel.
 3. Apply adhesive to clip tines immediately prior to pressing panels onto impaling clip.

C. Adhesive Attachment:

1. Apply adhesive to back of each panel with a maximum spacing of 3' horizontally and 2' vertically (minimum of 4 adhesive contact points per panel). Apply additional adhesive at midpoint of curved panels.

3.4 CLEANING AND PROTECTION

- A. Remove packaging and construction debris and legally dispose of off-site.
- B. Clean up installation area and sweep, dust or wipe material to remove any dirt, dust or debris.
- C. Repair or replace defaced or damaged finishes caused by work of this section.
- D. Protect fabric wrapped panels from damage after installation.
- E. Vacuum all fabric surfaces immediately prior to Substantial Completion inspection.

END OF SECTION 097723

SECTION 098413 - FIXED SOUND ABSORPTIVE PANELS

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. Section includes the following:
 - 1. Flat wall-mounted modules with sound absorbing properties.

1.3 REFERENCES

- A. The following documents and standards shall be used in estimating and detailing and shall be considered a minimum standard of quality and performance:
 - 1. American Society for Testing and Materials (ASTM):
 - a. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials

1.4 SUBMITTALS

- A. Submit under provisions of 013300 - Submittal Procedures.
- B. Product Data: Submit for each product specified, indicating materials, dimensions, profiles, textures and colors.
 - 1. Include manufacturer's installation instructions.
- C. Shop Drawings: Submit shop drawings indicating plans, details of construction, and relationship with adjacent construction.
- D. Verification Samples: Submit representative sample of acoustical module(s) in color specified.
- E. Maintenance Data: For inclusion in closeout maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of documented experience.
- B. Installer Qualifications: Company specializing in installing the products specified in this section with minimum five years of documented experience.

- C. Mock-ups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 - 1. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage.
 - 1. Schedule delivery to minimize time on site for storage of materials, without affecting sequence of construction operations.
 - 2. Inspect for damage prior to acceptance.
- B. Store materials, in manufacturer's unopened packing, to prevent deterioration, and in strict accordance with manufacturer's recommendations.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with manufacturer's written instructions regarding conditions affecting application.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. General: Refer to Architectural finish schedule for additional requirements.
- B. Basis-of-Design: Subject to compliance with requirements: MPS Acoustics, Coligo
 - 1. Substitutions: Refer to Division 01.

2.2 MATERIAL PROPERTIES

- A. Content: 100% polyester fiber acoustic felt
- B. ASTM E84 Class A Fire Spread
- C. Recycled Content: 60% recycled PET materials
- D. Sound Absorption: Average NRC 0.85
- E. Color: As indicated on Architectural finish schedule.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
 - 1. Commencement of work constitutes acceptance of conditions and substrates by installer.

3.2 PREPARATION

- A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for application.

3.3 INSTALLATION

- A. General: Install units in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.

3.4 CLEANING AND PROTECTION

- A. Remove surplus materials, rubbish and debris resulting from installation as work progresses.
- B. Upon completion of work, remove packaging and construction debris and legally dispose of off-site.
- C. Clean up installation area and sweep, dust or wipe material to remove any dirt, dust or debris.
- D. Repair or replace defaced or damaged surfaces and finishes caused by work of this section.
- E. Adjust units for proper position and uniform appearance.
- F. Clean absorptive panel surfaces using materials and procedures acceptable to manufacturer.
- G. Protect finished work from construction activities until time of Substantial Completion.

END OF SECTION 098413

SECTION 099000 - PAINTING AND COATING

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. Section includes:
 - 1. Complete surface preparation and finishing for field application of coatings and requirements for field finishing mechanical and electrical equipment.
 - a. Examine specifications for various other trades and their provisions regarding their painting. Surfaces that are left unfinished by other sections of the specifications shall be painted or finished as a part of this Section.
 - b. Colors, including deep tones, will be selected by the Architect. Number of colors to be used on job will be determined by Architect.

1.3 SURFACES NOT TO RECEIVE FIELD FINISHING

- A. Do not paint copper, bronze, chrome plated items, nickel, stainless steel, Monel metal, lead, face brick, prefinished wall, ceiling, and floor coverings, items with factory applied final finish (except where exposed on roofs and in finished spaces), elevator shafts, crawl spaces, chases, and plenums above suspended ceilings unless otherwise specified or scheduled.

1.4 DEFINITIONS

- A. Conform to ASTM D16 for interpretation of terms used in this Section.
- B. Finish Levels:
 - 1. Level 2: A thin coat of joint compound is skimmed over the tape and covers the gypsum board screw holes. Appropriate level of finish for tile.
 - 2. Level 3: Apply a coat of joint compound to the tape and screws.
 - 3. Level 4: Typical gypsum board finish unless noted otherwise. Apply a second coat of joint compound to the tape and screws and sand the dried compound.
 - 4. Level 5: Highest level of gypsum board finishing; apply a skim coat to the sanded and dried compound.

1.5 VOC COMPLIANCE

- A. Products specified and/or scheduled (including substitutes) proposed for use by Contractor must be formulated to meet all applicable ordinances and regulations regarding maximum V.O.C. content. Utilize products which have been specially formulated to meet such requirements.

1.6 QUALITY ASSURANCE

- A. Product Manufacturer: Company specializing in manufacturing quality paint and finish products with 3 years' experience.
- B. Applicator: Company specializing in commercial painting and finishing with 2 years' experience.
- C. Product Labels: Include manufacturer's name, type of paint, stock number, color and label analysis on label of all containers.

1.7 REGULATORY REQUIREMENTS

- A. Conform to applicable building code for flame spread/fuel contribution/smoke development rating requirements for finishes.
- B. Comply with applicable city, county, state, and federal requirements and ordinances regarding maximum VOC (Volatile Organic Compound) content of all coatings.

1.8 FIELD TESTING

- A. Provide regular testing with Wet Film Thickness gauge to verify that proper thickness of finish coatings is being applied.

1.9 SUBMITTALS

- A. Provide product data describing physical performance criteria and composition on all finishing products.
- B. Submit 2 samples, 12 by 12 inches in size illustrating range of colors and textures selected for each surface finishing product scheduled.
- C. Submit two samples, 12 inches long in size illustrating color and texture for railings and columns.
- D. Submit certification from manufacturer of coatings listing all products proposed for each. Certify that each product meets current applicable regulations and ordinances regarding maximum VOC content.

1.10 FIELD SAMPLES (MOCK-UPS)

- A. Provide field sample panel, 96 inches long by 96 inches wide, illustrating each coating color, texture, and finish intended for use.
 - 1. Locate where directed.
 - 2. Accepted sample may remain as part of the Work if protected until time of Substantial Completion.

1.11 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, and protect products under provisions of Division 01 section "Product Requirements"
- B. Deliver products to site in sealed and labeled containers; inspect to verify acceptance.
- C. Container labeling to include manufacturer's name, type of paint, brand name, brand code, coverage, surface preparation, drying time, cleanup, color designation, and instructions for mixing and reducing.
- D. Store paint materials at minimum ambient temperature of 45° F and a maximum of 90° F, in well ventilated area, unless required otherwise by manufacturer's instructions.
- E. Take precautionary measures to prevent fire hazards and spontaneous combustion.

1.12 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply materials when surface and ambient temperatures are outside the ranges required by paint manufacturer.
- B. Provide continuous ventilation and heating facilities to maintain surface and ambient temperatures above 45° F for 24 hours before, during, and 48 hours after application of finishes, unless required otherwise by manufacturer's instructions.
- C. Do not apply exterior coatings during rain or snow, or when relative humidity is above 75 percent, unless required otherwise by manufacturer's instructions.
- D. Minimum Application Temperatures for Latex Paints: 45° F for interiors; 50° F for exterior; unless required otherwise by manufacturer's instructions.
- E. Minimum Application Temperature for Varnish and Finishes: 65° F for interior or exterior, unless required otherwise by manufacturer's instructions.
- F. Provide lighting level of 80 ft candles measured mid- height at substrate surface.

1.13 MAINTENANCE MATERIALS

- A. Provide to Owner one (1) 5-gallon container of each color used on project.

- B. Label each container with color, color designation indicated on finish schedule, texture, and room locations, in addition to the manufacturer's label.

1.14 SCAFFOLDING AND PROTECTION

- A. Provide adequate ladders, scaffolds, and stages necessary to complete work.
- B. Protect completed finish and paint work, and protect adjacent finish surfaces from paint splatter, spills and stains.
 - 1. Use adequate drop cloths and masking procedures during progress of work.

1.15 SITE PRECAUTIONS

- A. Do not store paints, oils, thinners and other flammable items inside the building and shall be stored in approved containers when not in actual use during the painting job. The fire hazard shall be kept at a minimum.
- B. Precaution shall be taken to protect the public and construction workers during the progress of the work.
- C. Furnish a temporary fire extinguisher of suitable chemicals and capacity, located near flammable materials.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. General: Refer to Architectural finish schedule for additional requirements.
- B. Basis-of-Design: Subject to compliance with requirements: Dunn-Edwards
 - 1. Substitutions: Refer to Section 012500 - Substitution Procedures.
- C. Subject to the requirements contained herein, other manufacturers offering acceptable products may include, but are not limited to:
 - 1. Sherwin-Williams
- D. Materials selected for coating systems for each type of surface shall be products of a single manufacturer unless otherwise specified.
 - 1. Secondary products such as linseed oil, turpentine and shellacs shall be first quality products of a reputable manufacturer and as recommended by manufacturer of paint systems.

2.2 MATERIALS

- A. Coatings: Ready mixed. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating with good flow and brushing properties; capable of drying or curing free of streaks or sags.

- B. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.
- C. Patching Materials: Latex filler.
- D. Finishes: Color and Sheen: Refer to Architectural finish schedule.

2.3 INTERIOR PAINT SCHEDULE

- A. Commercial Low Odor / Zero VOC Latex System (Gypsum Board):
 - 1. Prime Coat: Primer sealer, latex, interior, Dunn-Edwards, Vinylastic Select VNLS00.
 - 2. Intermediate Coat: Latex, interior, matching topcoat
 - 3. Topcoat: Latex, interior, eggshell, Dunn-Edwards, Acri-Wall ACWL30, (Gloss Level 3).
- B. Galvanized Metal:
 - 1. Premium Low Odor / Zero VOC Latex System:
 - a. Pre-Treatment: Waterbased, Krud Kutter, Metal Clean & Etch SCME-01
 - b. Prime Coat: Primer, water based, Dunn-Edwards, Ultrashield Galvanized Metal Primer ULGM00.
 - c. Intermediate Coat: Latex, interior, matching topcoat.
 - d. Topcoat: Latex, interior, eggshell, Dunn-Edwards, Acri-Wall ACWL30, (Gloss Level 3).
- C. Ferrous Metal Substrates:
 - 1. Commercial Low Odor / Zero VOC Latex over a Waterborne Alkyd Primer System:
 - a. Prime Coat: Primer, alkyd, anti-corrosive, for metal, Dunn-Edwards, Bloc-Rust Premium BRPR00 Series or Enduraprime rust preventative primer ENPR00.
 - b. Intermediate Coat: Latex, interior, matching topcoat.
 - c. Topcoat: Latex, interior, eggshell, Dunn-Edwards, Acri-Wall ACWL30, (Gloss Level 3).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces and substrate conditions are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work.
 - 1. Report to Architect any condition that may potentially affect proper application.
- C. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Gypsum Wallboard: 12 percent.
 - 2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
- D. Test shop applied primers for compatibility with subsequent cover materials.
- E. Beginning of installation means acceptance of existing surfaces and substrate.

3.2 PREPARATION

- A. Remove electrical plates, hardware, light fixture trim, and fittings prior to preparing surfaces or finishing.
- B. Correct minor defects and clean surfaces which affect work of this Section. Remove existing coatings which exhibit loose surface defects.
- C. Shellac and seal marks which may bleed through surface finishes.
- D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach.
 - 1. Rinse with clean water and allow surface to dry.
- E. Aluminum Surfaces Scheduled for Paint Finish: Remove surface contamination by steam or high pressure water.
 - 1. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.
- F. Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.
- G. Gypsum Board Surfaces: Latex fill minor defects. Spot prime defects after repair.
- H. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- I. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter.

1. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry.
 2. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- J. Uncoated Steel and Iron Surfaces: Remove grease, scale, dirt, and rust. Where heavy coatings of scale are evident, remove by wire brushing or sandblasting; clean by washing with solvent.
1. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.
- K. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust.
1. Feather edges to make touch-up patches inconspicuous.
 2. Clean surfaces with solvent. Prime bare steel surfaces.
- L. Shop Finished Items: Finish in accordance with AWI standards and guide lines.
- M. Wood and Metal Doors Scheduled for Painting: Seal top and bottom edges with primer.

3.3 PROTECTION

- A. Protect elements surrounding the work of this Section from damage or disfiguration.
- B. Repair damage to other surfaces caused by work of this Section.
- C. Furnish drop cloths, shields, and protective methods to prevent spray or droppings from disfiguring other surfaces.

3.4 APPLICATION

- A. General: The intent of these Specifications is to produce the highest quality appearance of paint and finish surfaces. Employ skilled mechanics only.
 1. The proper preparation of all surfaces shall be strictly enforced and wherever finished surfaces show any defects due to improper preparation, workmanship, etc., the non-conforming work shall be removed and the work refinished at the expense of the Contractor.
- B. Apply products in strict accordance with manufacturer's instructions. Final finish coats shall have visual evidence of solid hiding and uniform appearance, and shall be free and smooth of brush marks, streaks, sags, runs, laps, or skipped areas.
- C. Do not apply finishes to surfaces that are not dry.
- D. Apply each coat to uniform finish and thickness.

- E. Apply each coat of paint slightly darker than preceding coat unless otherwise approved.
- F. Sand lightly between coats on wood and metal items to achieve required finish.
- G. Allow applied coat to dry before next coat is applied.
- H. Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- I. Prime back surfaces of interior and exterior woodwork scheduled to be painted with primer paint.
- J. Prime back surfaces of interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with mineral spirits.
- K. Edges of paint adjoining other materials or colors shall be sharp and clean with no overlapping.

3.5 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

- A. Paint all shop primed equipment. Paint shop prefinished items where exposed to view in finished spaces.
 - 1. In mechanical rooms, repair shop pre-finished coatings which have been scratched or otherwise damaged with identical touch-up paint. Sand prior to touching up as required.
- B. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- C. Paint all grilles, registers, diffusers, and speaker grilles to match adjacent wall and ceiling surfaces, except that factory pre-finished items need not be painted if installed in a suspended acoustical ceiling system where the acoustical panels match the mechanical or electrical item color.
- D. In all finished spaces, prime and paint exposed pipes, conduit, boxes, ducts, hangers, brackets, collars and supports. Paint to match adjacent surfaces.
- E. Repair or replace identification markings on mechanical or electrical equipment when painted accidentally.
- F. Paint interior surfaces of air ducts and convectors that are visible through grilles and louvers with one coat of flat black paint, to limit of sight line. Paint dampers exposed behind louvers, grilles, and convector to match face panels.

- G. Paint all surfaces of plywood backboards for electrical and telephone equipment before installing equipment.
- H. Replace electrical plates, hardware, light fixture trim, and fittings removed prior to finishing.
- I. Paint concrete support bases with gray floor deck enamel.
- J. Pipe hangers and other supports need not be painted except where installed in crawl spaces, where they shall be painted with a thick coat of asphaltic paint.

3.6 CLEANING, PROTECTION, AND TOUCH-UP

- A. As Work proceeds, promptly remove paint where spilled, splashed, or spattered.
- B. During progress of Work maintain premises free of unnecessary accumulation of tools, equipment, surplus materials, and debris.
- C. Collect cotton waste, cloths, and material which may constitute a fire hazard, place in closed metal containers and remove daily from site.
- D. Spot painting will be allowed to correct soiled or damaged paint surfaces only when touch-up spot will blend into surrounding finish and is invisible to normal viewing (as determined by the Architect). Otherwise, re-coat entire section to corners or to a visible stopping point.

END OF SECTION 099000