SECTION 00 01 01 - PROJECT MANUAL

FOR

ST. MARY'S UNIVERSITY GARNI 215 LAB RENOVATION ONE CAMINO SANTA MARIA SAN ANTONIO, TEXAS 78228

VOLUME 1 AND 2 BIDDING AND CONTRACT REQUIREMENTS AND SPECIFICATIONS

FOR THE

ST. MARY'S UNIVERSITY ONE CAMINO SANTA MARIA SAN ANTONIO, TEXAS 78228

ISSUE FOR PERMIT APRIL 25, 2025

PBK PROJECT NUMBER: 250071

PREPARED BY: PBK ARCHITECTS, INC. 601 NW LOOP 410, SUITE 400 SAN ANTONIO, TEXAS78216

SECTION 00 01 02 - PROJECT INFORMATION

PART 1 GENERAL

1.1 PROJECT IDENTIFICATION

- A. Project Name: Garni 215 Lab Renovation, located at:
 - One Camino Santa Maria.

San Antonio, Texas 78228.

- B. Owner, hereinafter referred to as the "Owner": St. Mary's University
- C. Owner's Designated Representative (ODR)
 - 1. Name: Edward Dusha.
 - 2. Address: One Camino Santa Maria.
 - 3. City, State, Zip: San Antonio, Texas 78228.
 - 4. Phone/Fax: 210-431-4273.

1.2 PROJECT DESCRIPTION

- A. Refer to Section 01 10 00 Summary.
- B. Contract Scope: The contract includes demolition, construction, and renovation.

1.3 PROJECT CONSULTANTS

- A. Architect, hereinafter referred to as the "Architect": PBK Architects, Inc..
 - 1. Address: 601 NW Loop 410, Suite 400.
 - 2. City, State, Zip: San Antonio, Texas78216.
 - 3. Phone: 210-829-0123.

1.4 PROCUREMENT DOCUMENTS

- A. Availability of Documents: Complete sets of procurement documents may be obtained:
 - 1. From Owner at the Project Manager's address listed above.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 00 01 02

SECTION 00 01 03 - PROJECT DIRECTORY

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Identification of project team members and their contact information.

1.2 OWNER:

- A. Name: St. Mary's University.
 - 1. Address: One Camino Santa Maria.
 - 2. City, State ZIP: San Antonio, Texas 78228.
 - 3. Telephone: <u>210-431-4273</u>.
- B. Primary Contact:
 - 1. Name: Edward Dusha, Owner's Designated Representative (ODR).
 - 2. Telephone: <u>210-431-4273</u>.

1.3 DESIGN CONSULTANTS:

- A. Architect: Design Professional of Record.
 - 1. Company Name: PBK Architects, Inc..
 - a. Address: 601 NW Loop 410, Suite 400.
 - b. City, State ZIP: San Antonio, Texas 78216.
 - c. Telephone: 210-829-0123.
 - 2. Primary Contact:
 - a. Name: Juan Carlos Dominguez.
 - b. Telephone: 210-829-0123.
- B. Mechanical, Electrical, and Plumbing Engineering Consultant:
 - Company Name: Infinity MEP Consultants, PLLC.
 - a. Address: 100 NE Loop 410, Suite 1375.
 - b. City, State ZIP: San Antonio, Texas 78216.
 - c. Telephone: 210-686-0410.
 - 2. Primary Contact:
 - a. Name: Marc Lopez.
 - b. Telephone: 210-686-0444.

PART 2 PRODUCTS

1.

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 00 01 03

PBK Architects, Inc. PBK Project No. 250071 Issue for Permit Garni 215 Lab Renovation St. Mary's University April 25, 2025

SECTION 00 01 07 - SEALS PAGE

NOTE:

INDICATION OF RESPONSIBILITY BY DISCIPLINE

Letters indicated in parenthesis next to disciplines below indicate responsibility for Sections listed in the Table of Contents.

OWNER (O)

OWNER'S NAME: ST. MARY'S UNIVERSITY.

Owner's Designated Representative (ODR): Edward Dusha. Address: One Camino Santa Maria. City, State ZIP: San Antonio, Texas 78228. Telephone Number: 210-431-4273. No Seal Required.

ARCHITECT (A)

COMPANY NAME: PBK ARCHITECTS, INC.

Texas Registered Firm BR-1608. Registered Architect: Clifford Whittingstall, R.A. #18585. Address: 601 NW Loop 410, Suite 400. City, State ZIP: San Antonio, Texas78216. Telephone Number: 210-829-0123.



DOOR HARDWARE (H)

COMPANY NAME: ALLEGION

Product Representative: Josh Chandler. Address: 9330 Corporate Drive, Suite 806. City, State ZIP: Selma, Texas 78154. Telephone Number: 210-896-1576. No Seal Required.

END OF SECTION 00 01 07

SECTION 00 01 10 - TABLE OF CONTENTS

GENERAL

RESPONSIBILITY

Each section is the responsibility of the discipline indicated by the letter in parenthesis following the section name as indicated in Section 00 01 07 - Seals Page with the following exceptions: (O): Section provided by Owner.

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

- 00 01 02 Project Information (A)
- 00 01 03 Project Directory (A)
- 00 01 07 Seals Page (A)
- 00 01 10 Table of Contents (A)
- 00 11 19 Request for Proposal (A)
- 00 21 16 Instructions to Proposers (CSP) (A)
- 00 22 00 Standard Terms and Conditions for Federally Funded Projects after May 2022 (O)
- 00 31 00 Available Project Information (A)

00 40 01 - Proposal Bond (A)

- 00 40 11 Felony Conviction Notification (A)
- 00 40 13 Affidavit of Non-Discriminatory Employment (A)
- 00 40 14 Affidavit of Non-Asbestos, Lead, and PCB Use (A)
- 00 40 17 Certification of Criminal History Record Information Review (A)
- 00 42 00 Proposal Forms (A)
- 00 43 36 Proposed Subcontractors Form (A)
- 00 45 00 Selection Criteria and Contractor Information (A)
- 00 45 19 Non-Collusion Affidavit (A)
- 00 50 00 Texas Statutory Performance Bond (A)
- 00 50 01 Texas Statutory Payment Bond (A)
- 00 52 00 Agreement Forms (Draft AIA A101-2017) (A)
- 00 65 01 Proposal Evaluation Waiver (A)
- 00 65 19.16 Affidavit of Release of Liens Form (A)
- 00 70 00 Conditions of the Contract (A)
- 00 72 00 General Conditions (Draft AIA A201) (A)
- 00 73 43 Wage Rate Requirements (Texas) (A)
- 00 73 46 Wage Determination Schedule (A)

DIVISION 01 - GENERAL CONDITIONS

- 01 10 00 Summary (A)
- 01 21 00 Allowances (A)
- 01 23 00 Alternates (A)
- 01 25 13 Product Substitution Procedures (A)
- 01 25 13.01 Request for Substitution Form (A)

- 01 26 00 Contract Modification Procedures (A)
- 01 29 00 Payment Procedures (A)
- 01 29 73 Schedule of Values (A)
- 01 31 00 Project Management and Coordination (A)
- 01 32 00 Construction Progress Documentation (A)
- 01 32 33 Photographic Documentation (A)
- 01 33 00 Submittal Procedures (A)
- 01 35 16 Alteration Project Procedures (A)
- 01 35 43.13 Environmental Procedures for Hazardous Materials (A)
- 01 35 46 Indoor Air Quality Procedures (A)
- 01 40 00 Quality Requirements (A)
- 01 41 00 Regulatory Requirements (A)
- 01 42 00 References (A)
- 01 42 16 Definitions (A)
- 01 45 23 Testing and Inspecting Services (A)
- 01 50 00 Temporary Facilities and Controls (A)
- 01 55 00 Vehicular Access and Parking (A)
- 01 56 00 Temporary Barriers and Enclosures (A)
- 01 60 00 Product Requirements (A)
- 01 61 16 Volatile Organic Compound (VOC) Content Restrictions (A)
- 01 73 00 Execution (A)
- 01 73 29 Cutting and Patching (A)
- 01 74 19 Construction Waste Management and Disposal (A)
- 01 77 00 Closeout Procedures (A)
- 01 77 00.01 G704-2000 Sample
- 01 77 00.02 G706-1994 Sample
- 01 77 00.03 G706A-1994 Sample
- 01 77 00.04 G707-1994 Sample
- 01 77 01 Closeout Form A Subcontractor's Affidavit of Release of Lien (A)
- 01 77 02 Closeout Form B Subcontractor Hazardous Material Certificate (A)
- 01 77 03 Closeout Form C Subcontractor Warranty (A)
- 01 78 23 Operation and Maintenance Data (A)
- 01 78 39 Project Record Documents (A)
- 01 79 00 Demonstration and Training (A)
- 01 91 13 General Commissioning Requirements (A)

DIVISION 02 - EXISTING CONDITIONS

- 02 41 00 Demolition (A)
- **DIVISION 03 CONCRETE**
 - 03 54 00 Cast Underlayment (A)

DIVISION 04 - MASONRY

NOT USED

DIVISION 05 - METALS

05 75 00 - Decorative Formed Metal (A)

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

06 20 00 - Finish Carpentry (A)

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

NOT USED

DIVISION 08 - OPENINGS

- 08 11 13 Hollow Metal Doors and Frames (A)
- 08 14 16 Flush Wood Doors (A)
- 08 71 00 Finish Hardware (H)
- 08 71 13 Power Door Operators (A)
- 08 80 00 Glazing (A)

DIVISION 09 - FINISHES

- 09 05 00 Common Work Results for Finishes (A)
- 09 05 61 Common Work Results for Flooring Preparation (A)
- 09 21 16 Gypsum Board Assemblies (A)
- 09 30 00 Tiling (A)
- 09 51 00 Acoustical Ceilings (A)
- 09 65 00 Resilient Flooring (A)
- 09 65 13 Resilient Base and Accessories (A)
- 09 81 00 Acoustic Insulation (A)
- 09 90 00 Painting and Coating (A)

DIVISION 10 - SPECIALTIES

- 10 11 00 Visual Display Units (A)
- 10 28 00 Toilet, Bath, and Laundry Accessories (A)
- 10 44 00 Fire Protection Specialties (A)

DIVISION 11 - EQUIPMENT

NOT USED

DIVISION 12 - FURNISHINGS

12 24 00 - Window Shades (A)

12 36 00 - Countertops (A)

DIVISION 13 - SPECIAL CONSTRUCTION

NOT USED

DIVISION 14 - CONVEYING EQUIPMENT

NOT USED

DIVISION 21 - FIRE SUPPRESSION

NOT USED

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DIVISION 22 - PLUMBING NOT USED **DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)** NOT USED **DIVISION 25 - INTEGRATED AUTOMATION** NOT USED **DIVISION 26 - ELECTRICAL** NOT USED **DIVISION 27 - COMMUNICATIONS** NOT USED **DIVISION 28 - SAFETY AND SECURITY** NOT USED **DIVISION 31 - EARTHWORK** NOT USED **DIVISION 32 - EXTERIOR IMPROVEMENTS** NOT USED **DIVISION 33 - UTILITIES** NOT USED **DIVISION 34 - TRANSPORATION** NOT USED **DIVISION 35 - WATERWAY AND MARINE CONSTRUCTION** NOT USED **DIVISION 40 - PROCESS INTEGRATION** NOT USED **DIVISION 41 - MATERIAL PROCESSING AND HANDLING EQUIPMENT** NOT USED **DIVISION 42 - PROCESS HEATING, COOLING, AND DRYING EQUIPMENT** NOT USED **DIVISION 43 - PROCESS GAS AND LIQUID HANDLING, PURIFICATION, AND STORAGE** EQUIPMENT NOT USED **DIVISION 44 - POLLUTION CONTROL EQUIPMENT** NOT USED **DIVISION 45 - INDUSTRY-SPECIFIC MANUFACTURING EQUIPMENT** NOT USED **DIVISION 46 - WATER AND WASTEWATER EQUIPMENT** NOT USED

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DIVISION 48 ELECTRICAL POWER GENERATION

NOT USED

END OF SECTION 00 01 10

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SECTION 00 11 19 - REQUEST FOR PROPOSAL

GENERAL INFORMATION

GENERAL

Proposals for the work identified below, in accordance with Proposal Documents and addenda that may be issued prior to date of proposal opening, will be received by the Ownerand the Architect, until proposal closing date and time, identified below.

PROJECT

Name: Garni 215 Lab Renovation.

Address: One Camino Santa Maria.

City, State ZIP: San Antonio, Texas78228.

OWNER

Owner: St. Mary's University.

Address: One Camino Santa Maria.

City, State ZIP: San Antonio, Texas78228.

Owner's Designated Representative (ODR): Edward Dusha.

Phone: <u>210-431-4273</u>.

ARCHITECT

Name: PBK Architects, Inc.

Address: 601 NW Loop 410, Suite 400.

City, State ZIP: San Antonio, Texas78216.

Phone: 210-829-0123.

PROPOSAL INFORMATION

PRE-PROPOSAL CONFERENCE

- A. Date and Time: <u>May 28, 2025</u>.
- B. Location: <u>Facilities Conference room in Treadaway</u>.
- C. Representatives of the Architect, the Owner, the Construction Manager, and the [___]the Architect and the Owner will be present at this meeting. All Offerors are encouraged to attend.

2.1 PROPOSAL SUBMISSION

- A. Date and Time: _____June 18, 2025 at 5:00 pm CDT.
- B. Location:
 - 1. Location Name: <u>Facilities Office at Treadaway</u>.
 - 2. Address: <u>One Camino Santa Maria</u>.
 - 3. Address: <u>San Antonio, Texas 78228</u>.

2.2 PROPOSAL OPENING

- A. Date and Time: _____June 18, 2025 at 5:00 pm CDT.
- B. Location:
 - 1. Location Name: Facilities Office at Treadaway.
 - 2. Address: <u>One Camino Santa Maria</u>.
 - 3. Address: San Antonio, Texas 78228.

Request for Proposal 00 11 19 - 1

2.3 PROPOSAL REQUIREMENTS

A. Offerors submitting a proposal are encouraged to visit the site. All Offerors submitting a proposal are encouraged to attend the proposal opening.

2.4 PROPOSAL DOCUMENTS

Digital Proposal Documents shall be made available by the Owner.

2.5 SUBMITTAL OF PROPOSAL

Submit Proposal to the Owner no later than the date and time specified. Submit proposals in duplicate in a sealed envelope in accordance with Section 00 21 16 - Instructions to Proposers (CSP).

Provide the following information on the envelope:

- 1. Name of Offeror.
- 2. Garni 215 Lab Renovation.
- 3. St. Mary's University.
- 4. Attn: Edward Dusha.
- A. No proposal shall be withdrawn within 45 days after the proposal opening without the specific consent of the Owner.
- B. Owner reserves the right to reject any and all proposals and to waive any informality in the Proposal process.

2.6 PAYMENT BOND AND PERFORMANCE BOND

A. A Payment Bond and Performance Bond, each in an amount equal to 100% of the Contract Sum conditioned upon the faithful performance of the Contract will be required. Please note that all bonding companies presented must be acceptable to the Owner.

END OF SECTION 00 11 19

SECTION 00 21 16 - INSTRUCTIONS TO PROPOSERS (CSP)

GENERAL

QUALIFIED OFFERORS

Competitive Sealed Proposals will be accepted from qualified Offerors (Contractor) only for the entire scope of work described in the Contract Documents. As a prerequisite to an Offeror's qualifying for the award of contract on this work, the Offeror must complete each item of Section 00 45 00 - Selection Criteria and Contractor Information. In addition to the information contained in Section 00 45 00 - Selection Criteria and Contractor Information, Offerors shall address the selection criteria issues specified for Determination of Successful Respondent and Award of Contract. Submit the Statement and other requested information with the Proposals in four copies; three of which will be retained by Owner and one retained by Architect. Qualification statements submitted by facsimile transmission will not be accepted.

The primary purposes of the evaluation process will be to:

Gather information for the Owner's evaluation procedure.

Enable Owner and/or Architect to evaluate the Offeror's qualifications.

After review of Proposals and Contractor's qualifications evaluation Owner will make its decision and each Offeror will be notified.

In arriving at its opinion concerning the Offeror's qualifications, Architect will use the same criteria that Owner will use in determination of the successful Offeror as specified.

In the event a proposed Offeror fails to submit the specified Contractor's Qualification Statement at time of receipt for Proposals, noncompliance shall be considered by Owner and Architect as a negative factor in the determination of the successful Offeror.

OFFEROR'S PRESENTATION

In making its Proposal, the Offeror represents that the Offeror:

Has read and understands the Propose Documents and the Proposal is made in accordance with the drawings and specifications.

Has thoroughly familiarized itself with Division 01 General Requirements as applicable to subsequent specification sections.

Has visited the site, familiarized itself with local conditions under which the work will be performed and has correlated observations with the requirements of the proposed Contract Documents.

Agrees to comply with requirements. An Offeror who subsequently does not agree to comply with the requirements will automatically disqualify itself from proposing or receiving award of the contract.

If the proposal is accepted, the Offeror agrees that:

Work on the project will begin immediately upon receipt of signed Contract or Notice to Proceed.

It will participate as a team member in cooperation with Architect, Engineers, Owner, and Owner's agents and/or consultants.

It will assign a competent full time superintendent, to the project, and that superintendent shall remain on the project for the duration of the project, subject only to continuous employment.

It provide a proposal bond in the amount of ten percent of the contract amount. If awarded, it shall furnish and pay for a Performance Bond and a Payment Bond each inthe full contract amount.

It shall carry and keep in full force for the duration of the Project, insurance coverage for Builder's Risk, Workmen's Compensation, Comprehensive General Liability, and Automobile Liability required by the A201 General Conditions and the Agreement.

By making its Proposal represents that the Proposal includes material and equipment specified in the Proposal Documents and supplemented, if necessary, for a complete and operating system.

Where subcontract work is involved and where Acceptable Subcontractors are designated for particular portions or phases of the Work, by making the Proposal, Contractor represents that its Proposal includes only firms designated as Acceptable Subcontractors. That no asbestos PCBs or lead building materials shall be used, and that the Offeror and subofferors and suppliers submitting a proposal to a Offeror, shall submit an affidavit at Project Close Out stating that no asbestos, PCB, or lead building materials has been used on the Project.

PROPOSAL DOCUMENTS

Proposal Documents include the Request for Competitive Sealed Proposals, Instructions to Offerors, the Proposal Form, and the proposed Contract Documents, including Addenda issued prior to receipt of proposals.

Contract Documents for the work consist of the AIA A101 Owner-Contractor Agreement as modified by the Owner, the AIA Document A201General Conditions modified by Owner, Drawings, Specifications, and Addenda issued prior to receipt of proposals. Should there be a conflict between the terms of proposal and terms of AIA A101 and AIA A201, as amended by Owner, terms of AIA A101 and AIA A201 control.

PROPOSAL PROCEDURES

A proposal is invalid if it has not been received at the designated location prior to the time and date for receipt of proposals indicated in the Request for Competitive Sealed Proposals, or prior to any extension thereof issued to the Offerors by Addenda.

Requested Alternates shall be proposed. If no change in the Base Proposal is required, enter "No Change".

Prior to the receipt of Proposals, Addenda will be forwarded by Architect and will be available for inspection wherever the proposal documents are kept available for that purpose.

Proposals will be received in duplicate only on the Owner's Form of Proposal for the work as indicated by the Proposal Documents, filled in, and enclosed in a sealed envelope addressed as follows:

Name of Offeror:

Project Name: Garni 215 Lab Renovation Owner: St. Mary's University Attn: Edward Dusha

-Proposal shall be accompanied by Proposal Bond or Certified Check in the amount of 10% of the proposal.

Deliver proposals in duplicate in a sealed envelope to the location specified at or before the established time and date. Proposal submitted using the U.S. Postal System shall be sent as Registered Mail.

A proposal may be withdrawn upon request by the Offeror or its duly authorized representative, provided the request is received by Owner at the location designated for receipt of proposals and prior to the time fixed for the opening of proposals. A withdrawal of a proposal shall not be effective unless a written confirmation of the withdrawal is received by Owner at the location of the bid opening within 48 hours before the time established for the opening of proposals. Proposal Bond will be returned if the proposal is withdrawn in accordance with specified procedures. Withdrawal of a proposal does not prejudice the right of the Offeror to file a new proposal at the time and place stated. No proposal may be withdrawn for 30 days after the time fixed for the opening of proposals.

INTERPRETATION OF PROPOSAL DOCUMENTS

Offerors and subofferors requiring clarification or interpretation of the Proposal Documents shall make a written or verbal request which shall reach Architect at least ten days prior to the date for receipt of proposals.

Interpretation, correction, or change of the Proposal Documents will be made by Addendum. Interpretations, corrections, or changes of the Proposal Documents made in any other manner are not binding.

SUBSTITUTIONS OF MATERIALS AND EQUIPMENT

Materials, products and equipment described in the Proposal Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. Materials and equipment named in, and procedures covered by these specifications have been selected as a standard because of quality, particular suitability or record of satisfactory performance. It is not intended to preclude the use of equal or better materials or equipment provided that same meets the requirements of the particular project and is approved in an addendum as a substitution prior to the submission of proposals.

Substitutions will not be considered prior to receipt of proposals unless written request for approval has been received by Architect at least seven days prior to the date established for receipt of proposals and the substitution request complies with requirements of Section01 25 13 - Product Substitution Procedures. Proposer shall complete the Substitution Request Form and submit with complete supporting data including drawings, catalogue cuts, performance and test data, and other technical data necessary for an evaluation. Architect's decision of a proposed substitution shall be final.

If Architect accepts a proposed substitution prior to receipt of proposals, notice of acceptance shall be by Addenda.

No substitutions will be considered after the Contract award.

REJECTION OF PROPOSALS

Owner reserves the right to reject any or all proposals and to reject a proposal that is not accompanied by the required proposal security or other data required by the Proposal Documents, and to reject a proposal which Owner considers incomplete or irregular.

Owner reserves the right to reject any or all proposals and to waive any formalities or irregularities and to make the award of the contract in the best interest of Owner.

Owner reserves the right to reject a proposal if the evidence submitted by, or investigation of, the offeror fails to satisfy Owner that the offeror is properly qualified to carry out the obligations of the contract and to complete the work. Award of the Contract may be made to other than the low dollar offeror and may be awarded to the Offeror proposing the best value to Owner, in addition to the purchase price, based on the published selection criteria and on its ranking evaluation.

Do not submit voluntary alternates. Owner reserves the right to reject proposals accompanied by conditional or qualifying statements, or voluntary alternates.

INSURANCE

Each Offeror shall include in its proposal the cost of insurance and shall carry and keep insurance in full force for the duration of the project. Provide insurance coverage required under the AIA Document A201 General Conditions modified by Owner and included herein under Section 00 70 00 - Conditions of the Contract.

PERFORMANCE BOND AND PAYMENT BOND

Each Offeror shall include in its proposal the cost for the premium for 100% Performance Bondand 100% Payment Bond. The bonds shall cover the faithful performance of the contract and payment of obligations arising thereunder in such form as Owner may prescribe. Bonding-

companies must be acceptable to Owner. Selected Offeror shall deliver the required bonds to Owner no later than the date of execution of Contract.

PROPOSAL SECURITY

No proposal will be considered unless it is accompanied by a Certified or Cashier's Check or Proposal Bond executed on attached form. In either case the amount shall be not less than tenpercent of the greatest amount proposed (considering alternates, if any). Proposal security shallinsure the execution of the contract and the furnishing of an acceptable Performance Bond and Payment Bond by the successful Offeror within ten days after notification of award to Offerorand that its proposal shall not be withdrawn for a period of 30 days after date of opening ofproposals without the consent of Owner. Proposal Bond shall be prepared in identical form of AIA Document A310.

SUBMISSION OF POST PROPOSAL INFORMATION

Apparent Selected Offeror shall, within three days after proposals are received, submit the following:

A designation of the work to be performed by Offeror with his own forces. An experience profile of the selected Offeror's superintendent scheduled to work on this project. In addition, apparent selected Offeror shall cooperate with Owner, supplying requested information to substantiate qualifications of the superintendent. If, in the opinion of Owner, the superintendent does not qualify, Owner may request the submission of another superintendent and more information. Owner reserves the right to reject the apparent selected Offeror if an acceptable superintendent is not presented.

Selected Offeror shall, within five (5) days thereafter, submit the following:

A statement of costs for each major item of work included in the proposal described in Section 01 29 00 - Payment Procedures. Each portion of work identified in specifications shall be considered a major item of work and shall be shown as a separate cost item.

AWARD OF CONTRACT

Selected Offeror will be notified within 45 days from the date on which proposals are opened. Offerors shall hold their offer open for 45 days after the submission deadline. If Owner is unable to negotiate a contract with the first selected offeror, Owner shall formerly end negotiations with that offeror and proceed to the next offeror in the order of the selection ranking until a contract is reached or each proposal is rejected.

Offeror will be required to (a) submit its Proposal and Proposal Bond, (b) execute Contract and Performance and Payment Bonds, and (c) submit Certificates of required insurances, using Owner's respective forms.

Proposal Bond is forfeited if proposal is withdrawn after the proposal opening, or Contract-Documents are not executed in accordance with specified procedures or time period.

NOTICE TO PROCEED

Offeror shall not commence work under this Contract until it receives a written Notice to Proceed or Contract is duly signed by Owner.

COMPLETION TIME

Offerors shall familiarize themselves with Owner's requirements concerning the project schedule. Project is to be substantially complete no later than 09-08-2025.

Having thoroughly familiarized itself with the conditions as they exist at the building site and acquainted itself with the labor supply and the material market, the Offeror shall state in its proposal that it agrees to be substantially complete with the work within the calendar days stated in its Proposal.

The definition of Substantial Completion is found in Article 9.8.1 of the AIA Document A201 General Conditions of the Contract for Construction modified by Owner and included under

Section 00 70 00 - Conditions of the Contract.

FELONY CONVICTION NOTIFICATION

Section 44.034, of Texas Education Code requires a person or business entity that enters into a contract with a school district give advance notice to the district if the person or an owner or operator of the business entity has been convicted of a felony. The notice must include a general description of the conduct resulting in the conviction of a felony. Subsection (b) states "a school district may terminate a contract with a person or business entity if the district determines that the person or business entity failed to give notice as required by Subsection (a) or misrepresented the conduct resulting in the conviction. The district must compensate the person or business entity for services performed before the termination of the contract." Subsection (c) states "this section does not apply to a publicly held corporation."

The Offeror shall execute Section 00 40 11 - Felony Conviction Notification and submit with proposal.

AFFIDAVIT OF NON-DISCRIMINATORY EMPLOYMENT

Offeror and subofferors agree to refrain from discrimination in terms and conditions of employment to the basis of race, color, religion, sex, or national origin, and agrees to take affirmative action as required by Federal Statutes and Rules and Regulations issued in order to maintain and insure non-discriminatory employment practices.

Offerors shall execute Section 00 40 13 - Affidavit of Non-Discriminatory Employment and submit with Proposal. Subofferors shall execute Section 00 40 13 - Affidavit of Non-Discriminatory Employment prior to commencing work on Project. Offerors and subofferors who do not execute Section 00 40 13 are not be eligible to work on the project.

SUBCONTRACTOR LISTING

Offeror shall supply a listing of the primary subcontractors using Section 004012:

Mechanical. Electrical. Plumbing. Masonry. Concrete. Steel. Any other prudent subcontractor.

AFFIDAVIT OF NO ASBESTOS, LEAD, AND PCB USE IN PROJECT

Use of a construction process or the installation of asbestos, lead, and PCBs or material containing asbestos, lead, and PCBs is strictly prohibited.

Prior to submitting a proposal, Offerors shall notify Architect, in writing, if a specified material is known to contain or is likely to contain asbestos, lead, or PCBs.

Offeror and subofferors agree to refrain from using products which are known to contain asbestos, lead, and PCB containing materials as applicable to Project. They shall affirm that lead or materials containing lead have not been incorporated into potable water systems, and that lead sheet flashing used in through roof plumbing penetration applications is the only lead on Project.

Selected Offeror and its subofferors shall execute Section 00 40 14 - Affidavit of Non-Asbestos, Lead, and PCB Use and submit at Project Closeout.

PROPOSAL EVALUATION WAIVER

By submitting a proposal, each offeror agrees to waive claims it has or may have against Owner, Program Manager, and their respective employees, Architect and consultants, and their respective employees, arising out of or in connection with the administration, evaluation, or recommendation of any proposal; waiver of any requirements under the Proposal Documents,

acceptance or rejection of any proposals; and award of the contract.

Offerors shall execute Section 00 65 01 - Proposal Evaluation Waiver and submit with the Proposal.

CONFLICT OF INTEREST QUESTIONNAIRE

According to Local Government Code, Chapter 176, a person or an agent of a person who contracts or seeks to contract for the sale or purchase of property, goods, or services with any local government agency must file a completed Conflict of Interest Questionnaire (CIQ) with the records administrator of the local government not later than the seventh business day after the date that the person begins contract discussions or negotiations with Owner or submits to Owner an application, response to a request for proposals or bids, correspondence, or another writing related to a potential agreement with Owner.

Offerors and subofferors proposing to do work with Owner shall execute Section 00 40 18 -Conflict of Interest Questionnaire and submit to Owner's Legal Department within seven (7) days of the Proposal Date. This requirement will be waived if Offeror or sub-offeror has previously submitted such document to Owner within the last year. In such case, provide written notification and attach to Proposal.

CRIMINAL HISTORY RECORDS

Prior to commencing any work on this Project, Contractor shall certify, on the form provided herein as Section 00 40 17 - Certification of Criminal History Record Information Review, that, for each of its employees and those of its Subcontractors who will have direct contact with students, Contractor has obtained, as required by Texas Education Code Section 22.0834:

national criminal history record information from a law enforcement or criminal justice agency for each employee of Contractor or Subcontractor hired before January 1, 2008 who will have direct contact with students; and

national criminal history record information from the Texas Department of Safety for each employee of Contractor or Subcontractor hired on or after January 1, 2008 who will have direct contact with students; Fingerprinting is required and shall be provided by Contractor (applicant) and administered through FAST (Fingerprint Applicant Services of Texas) which will be recorded by the District in the FACT (Fingerprint-based Applicant Clearinghouse of Texas). Currently applicant must obtain fingerprinting from L-1 Identity Solutions Company, 888-467-2080, or schedule an appointment online at: https://tx.ibtfingerprint.com/.

Any personnel who will have direct contact with students must not have been convicted of an offense identified in Texas Education Code Section 22.085.

Contractor shall execute and submit Section 00 40 17 - Certification of Criminal History Record Information Review along with required Schedule 'A' documenting proposed employees to be working on site, within 10 days after receipt of Notice To Proceed and prior to commencement of Work.

Furthermore, an updated Schedule 'B' shall be submitted weekly to Owner indicating changes to contractor personnel with accompanying certifications and criminal history records. Any fingerprinting and photographing required by the aforementioned code will be the responsibility of Contractor.

AVAILABILITY OF MATERIALS AND SYSTEMS

A serious effort has been made to select materials that are systems that are readily available. To the extent known at proposal time specified items are available or within a relatively short period of time. If during the proposal period, should an Offeror become aware of an availability or delivery issue with the specified systems or materials, it should notify Architect immediately. Architect will promptly explore possibilities for selecting other systems or materials which would eliminate the issue and notify Offerors of changes by addendum. It shall be understood that only specified systems and materials that are readily available are included in the proposal.

DETERMINATION OF SUCCESSFUL RESPONDENT AND AWARD OF CONTRACT

In determining Selected Offeror, a Selection Committee will evaluate the information derived from Section 00 45 00 - Selection Criteria and Contractor Information.

Selection Committee consisting of Owner's administrators, program managers, Architects, consultants and other staff will make an initial evaluation of the proposals. Committee's-recommendation will be considered by Owner's Board of _____ ("Board"). Owner reserves-the right to review the recommendation with Director of Maintenance and Operations and others deemed appropriate by Owner prior to review by entire Board. Final decision-making-authority on the proposals rests with full Board. Decision-making authority has not been-delegated to any person or entity other than Board.

Owner will make such investigations as it deems necessary to determine the ability of the offeror to perform the Work, and the offeror shall furnish all such information and data for this purpose as may be requested. Owner reserves the right to reject any proposal if the evidence submitted by, or investigation of, such offeror fails to satisfy Owner that such offeror is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein.

Owner reserves the right to reject any or all proposals and to waive any formalities or irregularities and to make the award of the contract in the best interest of Owner.

A decision regarding determination of the successful Offeror will be made by Owner as soon as practical.

USE OF ASBESTOS FREE MATERIALS, PRODUCTS AND SYSTEMS

Offeror shall consider the use of asbestos free material requirements in preparing its Proposal including requirements during performance of the work regarding the use of asbestos free materials, products, and systems in Project.

Since many materials, products and systems are proprietary, it is not possible to know the specific materials or components that produce each material, product or system without the manufacturer divulging trade secrets or patent information. Every effort has been made to specify materials, products, or systems, which do not contain asbestos. It is Contractor's responsibility to submit an affidavit from the manufacturer to ascertain that every material, product or system used in the Project does not contain asbestos. In the event a material, product, or system is found to contain asbestos, Contractor shall offer for Architect's consideration a substitution which it knows does not contain asbestos. Although a material, product, or system, Contractor is not to be relieved from its responsibility to ascertain that materials, products, and systems used in Project do not contain asbestos. Under no circumstances shall a material, product, or system which is known, suspected, or found to contain asbestos be used in Project.

If a material, product, or system containing asbestos is used, Contractor shall remove and replace the material, product, or system with a comparable or better asbestos free material at no expense to Owner, including removal and replacement of other materials affected by the removal of the asbestos containing material, product or system, i.e. removal, replacement, and finishing of gypsum board due to removal of asbestos insulation.

COMPLIANCE WITH TEXAS GOVERNMENT CODE 552.372

Contractor or vendor agrees contract can be terminated if Contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter, including the preservation of all "contracting information" (as defined in 552.003) and the provision, upon request of the governmental entity with whom you are contracting, of all contracting information. Contracting information includes, but is not limited to, records, communications and other documents related to the bid process, contract, payments, receipts, scope of work/services, and performance.

END OF SECTION 00 21 16

Standard Terms and Conditions for Federally Funded Projects after May 2022

A. Contract Standards

The Contractor must comply with the following procurement standards for all contracts issued pursuant to the Award:

- 1. Small and Minority Businesses As set forth in 2 CFR § 200.321 (Contracting with small and minority businesses, women's business enterprises, and labor surplus area firms), non-federal entities must take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible.
- 2. Change Orders The Contractor shall submit all contract change orders for review and for approval by Owner. Necessary supporting statements, estimates, specifications, and plans should be attached. Absent express legal authority.
 - a. A change order may also be required at project completion to establish final quantities for unit price contracts.
- 3. Bonding For construction or facility improvement contracts or subcontracts exceeding the Simplified Acquisition Threshold (currently \$250,000), the bonding requirements set forth in 2 CFR § 200.326 (Bonding requirements) shall apply.
 - a. Bid Bond. If the Award exceeds the Simplified Acquisition Threshold (currently \$250,000) a bid guarantee from each bidder equivalent to five percent of the bid price. The "bid guarantee" must consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of the bid, execute such contractual documents as may be required within the time specified.
 - b. A performance bond on the part of the contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.
 - c. A payment bond on the part of the contractor for 100 percent of the contract price. A "payment bond" is one executed in connection with a contract to ensure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract. See 2 CFR § 200.326 ("Bonding requirements").
- 4. The Contract Work Hours and Safety Standards Act (40 U.S.C. § § 3701-3708) Which provides work hour, health and safety standards for every laborer and mechanic employed by any contractor or subcontractor in the performance of each contract in an amount greater than \$100,000 that is entered into under legislation subject to Reorganization Plan.
- 5. Occupational Safety and Health Act of 1970 (Public Law 91-596) Which serves to assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act.
- 6. Specific Requirements for Contractors and Subcontractors -The Contractor is responsible for ensuring that it includes applicable Federal compliance provisions, as contained in these Contract Standards and other applicable Terms and Conditions of the award, including the contract provisions required by 2

CFR § 200.327 (Contract provisions), in all subcontracts awarded under the prime contract. Additionally, the Contractor must ensure that each subcontractor agree to comply with all applicable Federal, State, and local requirements pertaining to the project.

B. Build America, Buy America

a. Buy America Requirements - Pursuant to the Infrastructure Investment and Jobs Act, 2021, Pub. L. No. 117-58, 135 Stat. 429 (Nov. 15, 2021) (IIJA), including the Build

America, Buy America Act, Pub. L. No. 117-58, §§ 70901-52 (BABA), as well as guidance provided by Memorandum for Heads of Executive Departments and Agencies, Initial Implementation Guidance on Application of Buy America Preference in Federal Financial Assistance Programs for Infrastructure, Executive Office of the President, Office of Management and Budget (April 18, 2022) (OMB M-22-11), contractors are hereby instructed that:

- i. All iron and steel used in the project are produced in the United States--this means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;
- ii. All manufactured products used in the project are produced in the United States— this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and
- All construction materials (Excluding cement and cementitious materials, aggregates such as stone, sand, or gravel, or aggregate binding agents or additives) are manufactured in the United States this means that all manufacturing processes for the construction material occurred in the United States.

<u>The requirements of this subsection must be included in all subawards and contracts, including all</u> <u>contracts and purchase orders for work or products pursuant to this program, as applicable</u>. The Buy America preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project.

As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America preference apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project but are not an integral part of the structure or permanently affixed to the infrastructure project.

- b. Buy America Definitions
 - "Construction materials" includes an article, material, or supply—other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives²—that is or consists primarily of:
 - 1. non-ferrous metals;
 - 2. plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
 - 3. glass (including optic glass);

- 4. lumber; or
- 5. drywall.

In the case of construction materials, all manufacturing processes for the construction material must have occurred in the United States.³

- ii. "Domestic content procurement preference" means all iron and steel used in the project are produced in the United States; the manufactured products used in the project are produced in the United States; or the construction materials used in the project are produced in the United States.
- iii. "Infrastructure" includes, at a minimum, the structures, facilities, and equipment for, in the United States, roads, highways, and bridges; public transportation; dams, ports, harbors, and other maritime facilities; intercity passenger and freight railroads; freight and intermodal facilities; airports; water systems, including drinking water and

²₃ IIJA, § 70917(c)(1). *Id.* at § 70912(6)(C).

wastewater systems; electrical transmission facilities and systems; utilities; broadband infrastructure; and buildings and real property. Infrastructure includes facilities that generate, transport, and distribute energy.

iv. "Project" means the construction, alteration, maintenance, or repair of infrastructure in the United States.

C. Construction

The Contractor must comply and require each of its subcontractors employed in the completion of the Project to comply with all applicable Federal, State, territorial, and local laws, and in particular, the following Federal laws (and the regulations issued thereunder), Executive Orders, OMB Circulars, OMB Uniform Guidance, and local law requirements.

- a. Throughout Construction The Contractor is responsible for:
 - i. Ensuring project completion in accordance with approved plans and specifications;
 - ii. Monitoring project progress and reporting progress to the operating unit;
 - iii. Providing for required construction permits and adequate construction inspection;
 - iv. Promptly paying costs incurred for the project purposes, including appropriate bonding costs and insurance premiums;
 - v. Monitoring subcontractors' compliance with Federal, State, and local requirements; and
 - vi. Constructing and maintaining in good condition throughout the construction period, a sign or signs, at the project site in a conspicuous place indicating that the Federal Government is participating in the project.
 - vii. Monitoring compliance of a daily Quality Assurance Checklist (or similar tool), documented

electronically or in hard copy, as prepared by the Recipient, their designer, or contractor;

- viii. Monitoring compliance of all applicable safety programs and procedures, as prepared by the Owner, their designer, or contractor; and
- ix. Report contractor work hours with the number of reported safety incidents monthly. The means of monitoring and reporting may be incorporated into the safety program(s) referenced in h., immediately above.
- b. Final Inspection for Acceptance The Contractor will schedule a final inspection when all construction is completed, the architect/engineer has conducted a final inspection, and any deficiencies have been corrected.

SECTION 00 31 00 - AVAILABLE PROJECT INFORMATION

PART 1 GENERAL

1.1 EXISTING CONDITIONS

- A. Certain information relating to existing surface and subsurface conditions and structures, as follow, are available upon request, but are not part of Contract Documents:
 - 1. Hazardous Material Survey: Entitled Asbestos Survey/Inspection for Garni Hall, dated February 28, 2005.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 OBTAINMENT OF PERMITS

- A. Building Permit Procedures:
 - 1. Complete and file permit application(s) with appropriate agency.
 - a. Submit application within five (5) days of Notice to Proceed.
 - 2. Pay required fees.
 - 3. Provide expediting services, either directly or by hiring a firm specializing in these kind of services.
 - 4. Advise the Architect if submission of modified documents is necessary to have the authorities having jurisdiction complete the plan review and approval process. Submit modified documents expeditiously.
 - 5. Do not commence execution of any item of work for which a permit has not been obtained.

END OF SECTION 00 31 00

SECTION 00 40 01 - PROPOSAL BOND

GENERAL

KNOW ALL MEN BY THESE PRESENTS,

that we ______, as Principal, and ______, as Surety, are held and firmly bound unto the St. Mary's University, San Antonio, Texas, hereinafter called "the Owner", in the penal sum of

______Dollars (\$_____) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH,

that whereas the Principal has submitted the accompanying Proposal, dated ______, 20___, for Garni 215 Lab Renovation, the kind and extent of work involved being set forth in detail in the proposed Contract Documents cited herein.

THEREFORE,

If the Principal shall not withdraw the accompanying proposal within 45 days after the date set for opening thereof, and shall within ten days after the prescribed forms are presented for signature, enter into a written contract with Owner in accordance with the Proposal as accepted; and give Bond and good and sufficient surety for the faithful performance and proper fulfillment of the contract including payment of persons supplying labor or materials therefor, or in the event of the withdrawal of the proposal within the period specified, or the failure to enter into a contract and give the bond within the time specified, if the Principal shall pay to Owner the difference between the aggregate amount for which the Owner may enter into a contract for the same work with another Respondent; if the latter amount be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF,

the above bonded parties have executed this instrument under their respective seals this			
day of	, 20, the name and Corporate Seal of each		
corporate party being hereto affixed and these presents duly signed by its undersigned			
representatives, pursuant to authority of its governing body.			

Business Address		Individual Principal
Business Address		Individual Principal
ATTEST:	_	
	By:	
Secretary President		
Business Address	· · · · · · · · · · · · · · · · · · ·	Corporate Surety
ATTEST:		
	Ву:	
END	OF SECTION 00 40 01	

SECTION 00 40 11 - FELONY CONVICTION NOTIFICATION

NOTE: STATEMENT OF AFFIRMATION MUST BE NOTARIZED

OWNER'S NAME: ST. MARY'S UNIVERSITY

PROJECT NAME: GARNI 215 LAB RENOVATION

PROJECT ADDRESS:

One Camino Santa Maria.

San Antonio, Texas 78228.

STATEMENT OF AFFIRMATION

"The undersigned affirms that he/she is duly authorized to provide this information by the person(s) or business entity making the proposal, and the information provided below concerning felony convictions has been personally and thoroughly reviewed, and verified, and is, therefore, current, true and accurate to the best of my knowledge."

Firm's Name:_____

Address:

a.____ My firm is a publicly held corporation, therefore, this reporting requirement is not applicable.

b.____ My firm is not owned nor operated by anyone who has been convicted of a felony.

c.____ My firm is owned or operated by the following individual(s) who has/have been convicted of a felony:

Name of Felon(s): _____

Details of Conviction(s):

CHECK A, B, OR C ABOVE AND SIGN BELOW

Offeror's Name	
Position/Title	
Offeror's Signature	
Date:	
NOTARIZATION	
Subscribed and sworn to before me this day of	, 20
Notary Public:	
State of	
Commission expiration:	
	Seal

END OF SECTION 00 40 11

SECTION 00 40 13 - AFFIDAVIT OF NON-DISCRIMINATORY EMPLOYMENT

STATE OF TEXAS

COUNTY OF

AFFIDAVIT

This Company, Contractor, or Subcontractor agrees to refrain from discrimination in terms and conditions of employment to the basis of race, color, religion, sex, or national origin, and agrees to take affirmative action as required by Federal Statutes and rules and Regulations issued pursuant thereto in order to maintain and insure non-discriminatory employment practices.

	Company
	Printed Name
STATE OF TEXAS	Signature
COUNTY OF	
Subscribed and sworn to before me this day of Notary Public:	, 20
State of	
Commission expiration:	
NOTE: THIS DOCUMENT MUST BE SUBMITTED WITH	Seal

END OF SECTION 00 40 13
PBK Architects, Inc. PBK Project No. 250071 Issue for Permit

SECTION 00 40 14 - AFFIDAVIT OF NON-ASBESTOS, LEAD, AND PCB USE

UPON COMPLETION OF THIS FORM, RETURN TO THE ARCHITECT AT PROJECT CLOSEOUT.

PROJECT:

Owner's Name: St. Mary's University

Project Name: Garni 215 Lab Renovation

Project Address:

One Camino Santa Maria. San Antonio, Texas 78228.

ARCHITECT:

PBK Architects, Inc.

601 NW Loop 410, Suite 400.

San Antonio, Texas 78216.

Architect's Project No. 250071.

CONTRACTOR:

Contractor:

Company Address:

Date:

AFFIDAVIT

Undersigned affirms and certifies that "to the best of their knowledge and belief asbestos, lead, and PCB-containing materials have not been used or incorporated into the Work and lead or lead bearing materials have not been incorporated into potable water systems", including, but not limited to those water systems for drinking fountains, all sinks, showers, bath tubs, residential and commercial kitchen equipment, ice machines, and hose bibbs, as applicable to the project, and that lead sheet flashing used in through roof plumbing penetration applications is the only lead on the Project.

	Compa	any
	Printed Na	me
	Signat	ure
STATE OF TEXAS		
COUNTY OF		
Subscribed and sworn to before me this _	day of, 20	
Notary Public:		
State of		
Commission expiration:		
	S	eal

NOTE: THIS DOCUMENT MUST BE EXECUTED AND SUBMITTED AT PROJECT CLOSE-OUT END OF SECTION 00 40 14

SECTION 00 40 17 - CERTIFICATION OF CRIMINAL HISTORY RECORD INFORMATION REVIEW

GENERAL

CERTIFYING AFFIDAVIT SUBMITTED TO:

Owner: St. Mary's University

Owner's Address:

One Camino Santa Maria. San Antonio, Texas78228.

Project Name: Garni 215 Lab Renovation

Project Address:

One Camino Santa Maria. San Antonio, Texas 78228.

The completion of Conflict of Interest Questionnaire is not needed if the person is an employee of a governmental entity and is acting in the employee's official capacity.

STATE OF TEXAS

COUNTY OF _

(1) Undersigned representative, on behalf of the contracting firm identified below, swears and affirms to St. Mary's University (the Owner) that such firm has obtained, reviewed and verified, from a law enforcement or criminal justice agency or a private entity that is consumer reporting agency governed by the Fair Credit Reporting Act (15 U.S.C. §§ 1681 et seq.) the criminal history record information of all employees hired **before January 1, 2008**, who (a) have or will have continuing duties related to the contracted services, and (b) have or will have direct contact with students. Such employees are identified by name on Schedule A (the Contractor shall provide and attach hereto). Undersigned further swears and affirms no employees who meet the requirements of (a) and (b) herein and/or identified on Schedule A have been convicted of any offense identified in Section 22.085 of the Texas Education Code.

(2) Undersigned representative, on behalf of the contracting firm identified below, swears and affirms to the Owner, that such firm has obtained, reviewed and verified, from Texas Department of Public Safety criminal clearinghouse, the national criminal history record information of all employees hired **on or after January 1, 2008**, who (a) have or will have continuing duties related to the contracted services, and (b) have or will have direct contact with students. Such employees are identified by name on Schedule B (the Contractor shall provide and attach hereto). Undersigned further swears and affirms no employees who meet the requirements of (a) and (b) herein and/or identified on Schedule B have been convicted of any offense identified in Section 22.085 of the Texas Education Code.

(3) Undersigned firm swears and covenants that no present or future employee will provide services to the Project that involve direct contact with students unless and until such employee's national criminal history record information has been reviewed and cleared as required by Paragraph (2) above, and an updated Certification has submitted by the contracting firm to the Owner with an updated Schedule B identifying such employees. In the event of an emergency, an employee who has not been previously certified may only provide services that involve direct contact with students if such employee is escorted by a representative of the Owner .

(4) Undersigned firm swears and covenants that, upon receipt of information, directly or indirectly, that any employee of the contracting firm has been convicted of an offense identified in Section 22.085 of the Texas Education Code, the contracting firm will immediately remove such employee from the Project and notify the Owner.

(5) Furthermore, if requested by the Owner, the name, driver's license number, and any other information required by the DPS will be submitted to Owner for any person on either Schedule

Certification of Criminal History Record Information Review 00 40 17 - 1

A or Schedule B.

, being duly sworn, affirms and ce (position) of	tifies that they are the
(contracting firm), and that all statements and acknowledgement correct, and that they have the authority to bind such firm to the	s contained herein are true and covenants set out above.
Signature:	
NOTARIZATION	
Subscribed and sworn to before me this day of	, 20
Notary Public:	
State of	
Commission expiration:	
	Seal

END OF SECTION 00 40 17

SECTION 00 42 00 - PROPOSAL FORMS

GARNI 215 LAB RENOVATION

SUBMITTED BY:		

DATE: ______ PHONE NO.:_____

TO:

Owner's Designated Representative (ODR): Edward Dusha

Owner:

St. Mary's University. One Camino Santa Maria. San Antonio, Texas 78228.

Having examined Proposal and Contract Documents prepared by PBK Architects, Inc., dated April 25, 2025 and having examined site conditions, the undersigned proposes to furnish all labor, equipment and materials and perform all work for the completion of the above-named project for sum indicated below.

IN SUBMITTING THIS PROPOSAL, UNDERSIGNED AGREES TO THE FOLLOWING:

1. Hold proposal open for acceptance 45 days after the date on which proposals are opened.

2. Accept right of Owner to reject any or all proposals, to waive formalities and to accept proposal which Owner considers most advantageous.

3. Enter into and execute the contract, if awarded, for the Base Proposal and accepted Alternate Proposals.

4. Complete work in accordance with the Contract Documents within the stipulated contract time.

5. By signing, undersigned affirms that, to the best of their knowledge, Proposals have been arrived at independently and are submitted without collusion with anyone to obtain information or gain any favoritism that would in any way limit competition or give an unfair advantage over respondents in award of this proposal.

I. BASE PROPOSAL

Undersigned agrees to complete the Work for the lump sum amount as follows:

Cost (Written Out):	U.S. Dollars
Cost (Numerical): \$	U.S. Dollars

Note: Amount written in words governs.

II. ALLOWANCES

Undersigned certifies that allowances in 01 21 00 - Allowances are included in the Base Proposals and agrees that unexpended balance of allowance sums, including Contractor's markup for the remaining sums, will revert to Owner in final settlement of the contract.

\$40,000 Contingency.

III. UNIT PRICES

A. Not Applicable.

IV. ALTERNATES

Should Owner accept Alternates, undersigned agrees to modify Base Proposal as stipulated below:

Note: Amount written in words governs.

Alternate No. 1 - Restroom:

Add/Deduct (Written Out):	 U.S. Dollars
Add/Deduct (Numerical): \$	 U.S. Dollars

V. ADDENDA

Undersigned acknowledges receipt of Addenda Nos. ________, 20

VI. CHANGES IN THE WORK

Undersigned understands that changes in the Work shall be performed in accordance with Supplementary Conditions.

ACKNOWLEDGEMENT

It is understood that the right is reserved by Owner to reject any or all proposals, or waive any informalities in proposal process.

Authorized Signature
Title
Name of Contracting Firm
Address
City, State, ZIP
Telephone
Date
Seal, if a Corporation

State whether Corporation, Partnership, or individual

END OF SECTION 00 42 00

PBK Architects, Inc. PBK Project No. 250071 Issue for Permit

SECTION 00 43 36 - PROPOSED SUBCONTRACTORS FORM

PROJECT

OWNER:

St. Mary's University

PROJECT NAME:

Garni 215 Lab Renovation

ADDRESS:

One Camino Santa Maria.

San Antonio, Texas 78228.

ARCHITECT:

PBK Architects, Inc.

ADDRESS:

601 NW Loop 410, Suite 400.

San Antonio, Texas 78216.

PARTICULARS

(TO BE COMPLETED BY CONTRACTOR AND RETURNED TO ARCHITECT)

HEREWITH IS THE LIST OF SUBCONTRACTORS REFERENCED IN THE BID SUBMITTED BY: (CONTRACTOR) _____

(ADDRESS)

(CITY, STATE, ZIP)

DATED

LIST OF SUBCONTRACTORS

THE FOLLOWING WORK WILL BE PERFORMED (OR PROVIDED) BY SUBCONTRACTORS AND COORDINATED BY CONTRACTOR:

WORK/DIVISION / SUBCONTRACTOR NAME / TELEPHONE / P.O.C.

END OF SECTION 00 43 36

SECTION 00 45 00 - SELECTION CRITERIA AND CONTRACTOR INFORMATION

GENERAL

SELECTION CRITERIA

Proposals are to include information requested in this Section in sequence and format prescribed. In addition to and separate from requested information, offerors submitting proposals may provide supplementary materials further describing their capabilities and experience.

Following deadline for receipt, Owner's staff will receive, publicly open, and read aloud the names of the offerors and, if any are required to be stated, all prices stated in the proposals. Owner's staff will recommend that Owner select a construction contractor from the respondents to this Request for Proposals or reject all proposals.

Recommended ranking shall be based on data furnished by Offerors in response to Request for Proposals. The following is a list of criteria and weight for each criterion. Unless modified by addendum prior to opening of proposals, following listing of criteria and weight of criteria shall be utilized by Owner pursuant to Texas Government Code Chapter 2269, Subchapter D:

WEIGHT	CRITERIA
30%	Price
30%	Offeror's experience and reputation
15%	Quality of Offeror's services
15%	Whether Offeror's financial capability is appropriate to size and scope of Project
10%	Safety record

All responses in proposal may be used to help Owner select Contractor based on these criteria. Owner reserves the right to verify accuracy and completeness of all responses by utilizing any information available to Owner without regard to whether such information appears in proposal.

CONTRACTOR INFORMATION

Please provide the following information concerning your firm:

A. Offeror Information

- 1. Name of firm
- 2. Business address
- 3. Telephone number
- 4. Fax number
- 5. Type of organization (individual, partnership, corporation, association).

6. Number of permanent employees. (Employees hired for the duration of a specific project or under a fixed-term contract are not considered permanent employees for purposes of this proposal).

- i. Home office
- ii. Field

7. Primary contact person for Owner inquiries.

8. Main office location (if different than above).

Describe any substantial changes in ownership of your firm during the past five (5) years. How many years has your firm operated under its current form of business organization? List all professional or industry organizations in which your firm or its principals are members.

In order to assist the Owner in determining whether any conflicts of interest exist, please describe any business or family relationships between any member of the Owner's Board of and:

- 1. Your firm:
 - 2. Any principal of your firm;

PBK Architects, Inc. PBK Project No. 250071 Issue for Permit Garni 215 Lab Renovation St. Mary's University April 25, 2025

3. Any subcontractor you are considering using to perform any portion of the project work; or

4. Any principal of such subcontractor.

5. List all Mechanical, Electrical, and Plumbing subcontractors that your firm intends to use for this project.

B. Personnel Information

Provide brief resumes (two page limit) for the individuals listed below:

1. Principals/ Corporate Officers:

- i. President
- ii. Vice President
- iii. Partners
- 2. Project Management Candidates
 - i. Project Manager
 - ii. Superintendent

For the Project Manager and Superintendent candidates, please list up to two (2) people you consider qualified for each position. Please also provide a list of the principal duties and responsibilities you anticipate assigning to the Project Manager and to the Superintendent.

C. Higher Education Projects

List all Higher Education building projects your firm has completed within the past five (5) years, and for each project list the following information:

- 1. Project owner
- 2. Brief description of the project
- 3. Client, client contact person, and telephone number
- 4, Date construction completed
- 5. Managing Principal
- 6. Project Architect or Engineer

For the ten (10) largest projects please also provide the following information:

- 1. Original contract amount
- 2. Final contract amount
- 3, Number of change orders

D. Non-Higher Education Projects (Optional)

List up to five (5) major non-Higher Education building projects your firm has completed within the past five years, and for each project list:.

- 1. Name and location of the project
- 2. Brief description of the project
- 3. Client, client contact, and telephone number
- 4 . Final contract amount
- 5. Date construction completed
- 6. Managing Principal
- 7. Project Architect or Engineer

E. Claims and Litigation

1. Identify any claims or suits, if any, brought against your firm within the last five (5) years.

2. Describe all instances in which your firm was unable to complete the work under a contract.

3. Identify any judgments, claims arbitration proceedings or suits pending or outstanding against your firm or its officers.

4. Identify any lawsuits filed or arbitration requested by your firm with respect to construction contracts of your firm.

Selection Criteria and Contractor Information 00 45 00 - 2 PBK Architects, Inc. PBK Project No. 250071 Issue for Permit Garni 215 Lab Renovation St. Mary's University April 25, 2025

F. Current Work Load

Provide the following information for the five (5) largest projects you currently have under contract:

- 1. Project name
- 2. Location
- 3. Owner
- 4. Architect
- 5. Current contract amount
- 6. Percent complete
- 7. Specified contract completion date

G. Financial Information

Provide the following financial information regarding your firm:

1. Total amount of work performed as general contractor for each of the past five (5) years.

- 2. Bonding capacity
 - i. Per project
 - ii. Aggregate
- 3. Bank reference(s)
 - i. Individual, title
 - ii. Name of bank
 - iii. Address
 - iv. Telephone
- 4. Bonding company reference(s).
 - i. Individual, title
 - ii. Name of bonding company
 - iii. Address
 - iv. Telephone
- 5. Dunn & Bradstreet rating, if available

H. Safety Record

Describe your organization's safety program and provide your worker's compensation experience modification factor. List any safety awards your organization has received within the past five (5) years.

I. Execution

The foregoing is true and correct. Owner, or any authorized representative of Owner, is authorized by the undersigned to contact any firm, institution, or person listed above to obtain information about our firm's services, financial condition, and any other information which Owner might determine as being desirable.

Offeror: _____

By:

Signature: ____

Printed Name:

Title:

END OF SECTION 00 45 00

SECTION 00 45 19 - NON-COLLUSION AFFIDAVIT

STATE OF TEXAS

COUNTY OF

AFFIDAVIT

By submission of this proposal, the undersigned certifies that:

a. This proposal has been independently arrived at without collusion with any other offeror or with any other competitor;

b. This proposal has not been knowingly disclosed and will not be knowingly disclosed, to any other offeror competitor or potential competitor, prior to the opening of proposals for this project;

c. No attempt has been or will be made to induce any other person, partnership or corporation to submit or not submit a proposal;

d. The undersigned certifies that he is fully informed regarding the accuracy of the statements contained in this certification, and that the penalties herein are applicable to the offeror as well as to any person signing in his behalf.

Company: _____

Printed Name: _____

Signature: _____

NOTARIZATION

Sworn to and subscribed before me at ______, Texas, this the ______day of ______, 20___. Notary Public in and for _____ County, Texas

Commission Expires:

NOTE: THIS FORM MUST BE EXECUTED AND SUBMITTED WITH PROPOSAL

END OF SECTION 00 45 19

SECTION 00 50 00 - TEXAS STATUTORY PERFORMANCE BOND

BOND NO.: ____

(PENALTY OF THIS BOND MUST BE 100% OF CONTRACT AMOUNT) KNOW ALL MEN BY THESE PRESENTS, THAT:

that	(hereinafter called the Principal), as
principal, and	a corporation organized
and existing under the laws of the State of	authorized and admitted to do
business in the State of Texas and licensed by the State of	f Texas to execute bonds as Surety
(hereinafter called the Surety), as Surety, are held and firm	nly bound unto

	(hereinafter called the Obligee)
in the amount of	U.S. Dollars (\$
f	

for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

the Principal has entered into a certain written contract with the Obligee, dated the _____

day of _____, 20__, for

Name of Offeror (Contractor):

Project Name: Garni 215 Lab Renovation

Owner's Name: St. Mary's University

Attn: Edward Dusha

which contract is hereby referred to and made a part hereof as fully and the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH,

that if the said Principal shall faithfully perform the work in accordance with the plans, specifications and contract documents, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, HOWEVER,

that this bond is executed pursuant to the provisions of Chapter 22.53 of the Texas Government Code and all liabilities on this bond shall be determined in accordance with the provisions of said Chapter to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF,

the said Principal and Surety have signed and sealed this Instrument this _____ day of _____, 20___.

Principal:	
Witness:	
Witness:	
Attorney-in-Fact:	
Surety Address:	
Surety City, State, ZIP:	
Surety Telephone:	

END OF SECTION 00 50 00

Texas Statutory Performance Bond 00 50 00 - 1

SECTION 00 50 01 - TEXAS STATUTORY PAYMENT BOND

BOND NO.: ____

(PENALTY OF THIS BOND MUST BE 100% OF CONTRACT AMOUNT) KNOW ALL MEN BY THESE PRESENTS,

that:	(hereinafter called the Principal), as
principal, and	a corporation organized
and existing under the laws of the State of	authorized and admitted to
do business in the State of Texas and licensed by the State	e of Texas to execute bonds as
Surety (hereinafter called the Surety), as Surety, are held a	nd firmly bound unto

	(hereinafter called the Obligee)
in the amount of	U.S. Dollars (\$

for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20__ for:

Name of Offeror (Contractor):

Project Name: Garni 215 Lab Renovation

Owner's Name: St. Mary's University

Attn: Edward Dusha

which contract is hereby referred to and made a part hereof as fully and the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH,

that if the said Principal shall pay all claimants supplying labor and material to him or a Subcontractor in the prosecution of the work provided for in said contract, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED,

that the bond is executed pursuant to the provisions of Chapter 22.53 of the Texas Government Code and liabilities on this bond to claimants shall be determined in accordance with the provisions of said Chapter to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF,

the said Principal and Surety have signed and sealed this Instrument this	day of
, 20	

Principal:
Witness:
Witness:
Attorney-in-Fact:
Surety Address:
Surety City, State, ZIP:
Surety Telephone:

END OF SECTION 00 50 01

Texas Statutory Payment Bond 00 50 01 - 1



Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the _____ day of _____ in the year _____ (*In words, indicate day, month and year.*)

BETWEEN the Owner:

(Name, legal status, address and other information)

and the Contractor: (Name, legal status, address and other information)

for the following Project: (Name, location and detailed description)

The Architect: (*Name, legal status, address and other information*)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101[®]–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement.

AIA Document A201®–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

The Owner and Contractor agree as follows.

TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be: *(Check one of the following boxes.)*

The date of this Agreement.

A date set forth in a notice to proceed issued by the Owner.

Established as follows:

(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

(Check one of the following boxes and complete the necessary information.)

□ Not later than

() calendar days from the date of commencement of the Work.

2

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§ 4.6 Other: (Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

Units and Limitations

§ 4.3 Allowances, if any, included in the Contract Sum: (Identify each allowance.)

(Insert terms and conditions for liquidated damages, if any.)

Item

(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Price

§ 4.4 Unit prices, if any:

Price per Unit (\$0.00)

3

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be (\$), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item

Item

Price

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement. (Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Price

Conditions for Acceptance

Portion of Work

of such portions by the following dates:

Substantial Completion Date

By the following date: § 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are

Item

§ 4.5 Liquidated damages, if any:

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than () days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201[™]–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- 4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

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§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

§ 5.1.7.1.1 The following items are not subject to retainage:

(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:

(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:

(Insert any other conditions for release of retainage upon Substantial Completion.)

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located. (Insert rate of interest agreed upon, if any.)

ARTICLE 6 DISPUTE RESOLUTION § 6.1 Initial Decision Maker

%

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker. (If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

5

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§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows: *(Check the appropriate box.)*

Arbitration pursuant to Section 15.4 of AIA Document A201–2017
 Litigation in a court of competent jurisdiction
 Other (Specify)

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows: (*Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.*)

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201-2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:

(Name, address, email address, and other information)

§ 8.3 The Contractor's representative: (Name, address, email address, and other information)

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101[™]– 2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101[™]–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203[™]–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

§ 8.7 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101TM–2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A101TM–2017, Exhibit A, Insurance and Bonds
- .3 AIA Document A201TM–2017, General Conditions of the Contract for Construction
- .4 AIA Document E203TM–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:

(Insert the date of the E203-2013 incorporated into this Agreement.)

.5	Drawings			
	Number	Title	Date	
.6	Specifications Section	Title	Date	Pages
.7	Addenda, if any: Number	Date	Pages	

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

7

□ AIA Document E204TM-2017, Sustainable Projects Exhibit, dated as indicated below: (Insert the date of the E204-2017 incorporated into this Agreement.)

	The	Susta	inal	oili	tv	Plan:
ľ		00000			~ ,	I IuII.

	Title	Date	Pages	
	Supplementary and other Co	onditions of the Contract:		7.
	Document	Title	Date	Pages
.9	Other documents, if any, listed	below:		

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201TM-2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

This Agreement entered into as of the day and year first written above.



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SECTION 00 65 01 - PROPOSAL EVALUATION WAIVER

GENERAL

NOTICE:

By submitting a Proposal, the proposer indicated below agrees to waive any claim it has or may have against the Owner, the Architect, the Engineers, the Consultants, and their respective employees, arising out of or in connection with the administration, evaluation, or recommendation of any proposal. The proposer further agrees the Owner reserves the right to waive any requirements under the proposal documents or the Contract Documents, with regards to acceptance or rejection of any proposals, and recommendation or award of the contract.

NOTE: The Statement of Affirmation Must Be Notarized.

STATEMENT OF AFFIRMATION

"The undersigned affirms that he/she is duly authorized to execute this waiver by the person(s) or business entity making the proposal.

Firm's Name:	
Address:	
Proposer's Name:	Position/Title:
Proposer's Signature:	Date:
NOTARIZATION	
Subscribed and sworn to me on this	day of
Notary Public:	
Commission Expiration:	
NOTE: THIS DOCUMENT MU	ST BE SUBMITTED WITH PROPOSAL
END OF SEC	CTION 00 65 01

SECTION 00 65 19.16 - AFFIDAVIT OF RELEASE OF LIENS FORM

GENERAL

SUMMARY

Document Includes: Applicability and use of statutory Waiver and Release of Lien forms promulgated by the Legislature of the State of Texas for construction projects in Texas.

STATUTORY REGULATIONS

Texas Property Code, Chapter 53, Subchapter L, Sections 53.281 through 53.287 (includes the standard forms attached herewith immediately following this section):

Form 1: Conditional Waiver and Release on Progress Payment.

Form 2: Unconditional Waiver and Release on Progress Payment.

Form 3: Conditional Waiver and Release on Final Payment.

Form 4: Unconditional Waiver and Release on Final Payment.

SELECTION AND USE OF WAIVER AND RELEASE OF LIENS FORM

Submit the applicable form, legally executed (filled out, signed, and dated) and notarized, for each occasion required. Refer to the Agreement and Section 01 29 00 - Payment Procedures.

The wording of these forms is prescribed by the State of Texas. Questions regarding the use, execution, etc. should be directed to user's own attorney experienced in construction or lien law. This document does not render legal advice.

If the Contract Documents do not explicitly require submittal of Waivers and Releases of Liens for each payment, Owner reserves the right, at its sole discretion, to require applicable Waivers and Releases of Liens, executed and notarized, for payment applications.

NOTE: The attached forms are duplicated verbatim (without editing) from Chapter 53 Property Code Sec. 53.284 (b), added by Acts 2011, 82nd Leg., R.S., Ch. 271 (H.B. <u>1456</u>), Sec. 3, effective January 1, 2012.

FORM 1: CONDITIONAL WAIVER AND RELEASE ON PROGRESS PAYMENT

PROJECT: GARNI 215 LAB RENOVATION

OWNER: ST. MARY'S UNIVERSITY

ARCHITECT'S PROJECT NUMBER: 250071

On receipt by the signer of this document of a check from ______ (maker of check) in the sum of \$______ payable to ______ (payee or payees of check) and when the check has been properly endorsed and has been paid by the bank on which it is drawn, this document becomes effective to release any mechanic's lien right, any right arising from a payment bond that complies with a state or federal statute, any common law payment bond right, any claim for payment, and any rights under any similar ordinance, rule, or statute related to claim or payment rights for persons in the signer's position that the signer has on the property of St. Mary's University (the Owner) located at (One Camino Santa Maria, San Antonio, Texas78228 to the following extent:

(job description).

This release covers a progress payment for all labor, services, equipment, or materials furnished to the property or to ______ (person with whom signer contracted) as indicated in the attached statement(s) or progress payment request(s), except for unpaid retention, pending modifications and changes, or other items furnished.

Before any recipient of this document relies on this document, the recipient should verify evidence of payment to the signer.

The signer warrants that the signer has already paid or will use the funds received from this progress payment to promptly pay in full all of the signer's laborers, subcontractors, materialmen, and suppliers for all work, materials, equipment, or services provided for or to the above referenced project in regard to the attached statement(s) or progress payment request(s).

Date:	
Company Name:	
Signature:	
Litle:	

FORM 2: UNCONDITIONAL WAIVER AND RELEASE ON PROGRESS PAYMENT

NOTICE:

This document waives rights unconditionally and states that you have been paid for giving up those rights. It is prohibited for a person to require you to sign this document if you have not been paid the payment amount set forth below. If you have not been paid, use a conditional release form.

PROJECT: GARNI 215 LAB RENOVATION

OWNER: ST. MARY'S UNIVERSITY

ARCHITECT'S PROJECT NUMBER: 250071

The signer of this document has been paid and has received a progress payment in the sum of \$_______ for all labor, services, equipment, or materials furnished to the property or to _______ (person with whom signer contracted) on the property of St. Mary's University (the Owner) located at One Camino Santa Maria, San Antonio, Texas78228 to the following extent:

(job description).

The signer therefore waives and releases any mechanic's lien right, any right arising from a payment bond that complies with a state or federal statute, any common law payment bond right, any claim for payment, and any rights under any similar ordinance, rule, or statute related to claim or payment rights for persons in the signer's position that the signer has on the above referenced project to the following extent:

This release covers a progress payment for all labor, services, equipment, or materials furnished to the property or to ______ (person with whom signer contracted) as indicated in the attached statement(s) or progress payment request(s), except for unpaid retention, pending modifications and changes, or other items furnished.

The signer warrants that the signer has already paid or will use the funds received from this progress payment to promptly pay in full all of the signer's laborers, subcontractors, materialmen, and suppliers for all work, materials, equipment, or services provided for or to the above referenced project in regard to the attached statement(s) or progress payment request(s).

Date: _____

Company Name:	

Signature: _____

Title: _____

FORM 3: CONDITIONAL WAIVER AND RELEASE ON FINAL PAYMENT

PROJECT: GARNI 215 LAB RENOVATION

OWNER: ST. MARY'S UNIVERSITY

ARCHITECT'S PROJECT NUMBER: 250071

On receipt by the signer of this document of a check from ______(maker of check) in the sum of \$______ payable to: _______ (payee or payees of check) and when the check has been properly endorsed and has been paid by the bank on which it is drawn, this document becomes effective to release any mechanic's lien right, any right arising from a payment bond that complies with a state or federal statute, any common law payment bond right, any claim for payment, and any rights under any similar ordinance, rule, or statute related to claim or payment rights for persons in the signer's position that the signer has on the property of St. Mary's University (the Owner) located at One Camino Santa Maria, San Antonio, Texas78228 to the following extent:

(job description).

This release covers the final payment to the si	igner for all labor, services, equipment, or
materials furnished to the property or to	(person with whom signer
contracted).	

Before any recipient of this document relies on this document, the recipient should verify evidence of payment to the signer.

The signer warrants that the signer has already paid or will use the funds received from this final payment to promptly pay in full all of the signer's laborers, subcontractors, materialmen, and suppliers for all work, materials, equipment, or services provided for or to the above referenced project up to the date of this waiver and release.

Date:	
Company Name:	
Signature:	

FORM 4: UNCONDITIONAL WAIVER AND RELEASE ON FINAL PAYMENT

NOTICE:

This document waives rights unconditionally and states you have been paid for giving up those rights. It is prohibited for a person to require you to sign this document if you have not been paid the payment amount set forth below. If you have not been paid, use a conditional release form.

PROJECT: GARNI 215 LAB RENOVATION

OWNER: ST. MARY'S UNIVERSITY

ARCHITECT'S PROJECT NUMBER: 250071

The signer of this document has been paid in full for all labor, services, equipment, or materials furnished to the property or to ______ (person with whom signer contracted) on the property of St. Mary's University (the Owner) located at One Camino Santa Maria, San Antonio, Texas78228 to the following extent:

(job description).

The signer therefore waives and releases any mechanic's lien right, any right arising from a payment bond that complies with a state or federal statute, any common law payment bond right, any claim for payment, and any rights under any similar ordinance, rule, or statute related to claim or payment rights for persons in the signer's position.

The signer warrants that the signer has already paid or will use the funds received from this final payment to promptly pay in full all of the signer's laborers, subcontractors, materialmen, and suppliers for all work, materials, equipment, or services provided for or to the above referenced project up to the date of this waiver and release.

Date:

Company Name: _____

Signature: ______ Title: _____

END OF SECTION 00 65 19.16

SECTION 00 70 00 - CONDITIONS OF THE CONTRACT

I. CONSTRUCTION CONTRACT AGREEMENT

1.1 GENERAL

A. Contract for the construction of the project shall be executed by the successful Offeror on the 2017 Edition of AIA Document A101 Standard Form of Agreement Between Owner and Contractor (Stipulated Sum). Said contract, fully executed, shall be delivered to Owner within ten (10) days of receipt of said contract.

II. CONDITIONS OF THE CONTRACT

2.1 GENERAL AND SUPPLEMENTARY CONDITIONS

A. AIA Document A201 The General Conditions of the Contract for Construction 2017 Edition, as modified by Section 00 73 00 - Supplementary Conditions, is made a part of the Contract Documents.

2.2 REQUIREMENTS

- A. Contractor is specifically directed, as a condition of the Contract, to acquaint themselves with the Articles of the General Conditions and to notify and apprise its subcontractors and other entities of the conditions governing the Contract for Construction.
- B. No contractual adjustments shall be due for failure of each entity to fully acquaint itself with the General Conditions.
- C. Provisions of General and Supplementary Conditions and Division 01 General Requirements apply to work specified in each Section of the Contract Specifications and indicated on Contract Drawings.

III. AVAILABILITY

3.1 GENERAL

A. Failure to obtain and examine these documents in no way relieves Contractor, Subcontractors, Sub-subcontractors, and material suppliers of responsibilities incorporated in the Agreement.

3.2 DOCUMENTS SOURCES

A. A.I.A. Documents may be obtained from the nearest local chapter of the American Institute of Architects. Copies may also be obtained from local architects' supplies stores.

END OF SECTION 00 70 00


for the following PROJECT:

(Name and location or address)

THE OWNER:

(Name, legal status and address)

THE ARCHITECT: (Name, legal status and address) This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503[™], Guide for Supplementary Conditions.

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ARTICLE 1 GENERAL PROVISIONS § 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining

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provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Subsubcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203TM_2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203TM_2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202TM_2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building

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ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the

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site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's

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capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes

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§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 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

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.3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

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§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certifications, and approval performed or provided by such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the

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time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for 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 the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under

Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the

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Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the Subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate

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Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

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- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The

Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Time, the Contract Sum or extension of the Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable

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by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's substantiate.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reasons for withholding certification and Owner of the Architect's reason for Withhold certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The

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§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers

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to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

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§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not

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constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

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§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the

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§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Subsubcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, subsubcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The

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Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and subsubcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the

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§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2. The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

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§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section

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§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

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§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly

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consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

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SECTION 00 73 43 - WAGE RATE REQUIREMENTS (TEXAS)

GENERAL

REGULATIONS

The following information is from Chapter 2258 Texas Government Code: Effective March 01, 2016.

2258.021. RIGHT TO BE PAID PREVAILING WAGE RATES.

(a) A worker employed on a public work by or on behalf of the state or a political subdivision of the state shall be paid:

(1) not less than the general prevailing rate of per diem wages for work of a similar character in the locality in which the work is performed; and

(2) not less than the general prevailing rate of per diem wages for legal holidays and overtime work.

(b) Subsection (a) does not apply to maintenance work.

(c) A worker is employed on public work for the purposes of this section if the worker is employed by a contractor or subcontractor in the execution of a contract for the public work with the state, a political subdivision of the state, or any officer or public body of the state or a political subdivision of the state.

2258.023. PREVAILING WAGE RATES TO BE PAID BY CONTRACTOR AND SUBCONTRACTOR; PENALTY.

(a) The contractor who is awarded a contract by a public body or a subcontractor of the contractor shall pay not less than the rates determined under Section 2258.022 to a worker employed by it in the execution of the contract.

(b) A contractor or subcontractor who violates this section shall pay to the state or a political subdivision of the state on whose behalf the contract is made, \$60 for each worker employed for each calendar day or part of the day that the worker is paid less than the wage rates stipulated in the contract. A public body awarding a contract shall specify this penalty in the contract.

(c) A contractor or subcontractor does not violate this section if a public body awarding a contract does not determine the prevailing wage rates and specify the rates in the contract as provided by Section 2258.022.

(d) The public body shall use any money collected under this section to offset the costs incurred in the administration of this chapter.

(e) A municipality is entitled to collect a penalty under this section only if the municipality has a population of more than 10,000.

2258.051. DUTY OF PUBLIC BODY TO HEAR COMPLAINTS AND WITHHOLD PAYMENT.

A public body awarding a contract, and an agent or officer of the public body, shall:

(1) take cognizance of complaints of all violations of this chapter committed in the execution of the contract; and

(2) withhold money forfeited or required to be withheld under this chapter from the payments to the contractor under the contract, except that the public body may not withhold money from other than the final payment without a determination by the public body that there is good cause to believe that the contractor has violated this chapter.

WAGE RATES

Refer to Section 00 73 46 - Wage Determination Schedule for applicable Wage Rates.

END OF SECTION 00 73 43

Wage Rate Requirements (Texas) 00 73 43 - 1 This page intentionally left blank

SECTION 00 73 46 - WAGE DETERMINATION SCHEDULE

Prevailing Wage Rates - Construction Trades

Bexar County - TX20240231

CLASSIFICATION	HOURLY RATES	FRINGES
Asbestos Worker / Heat & Frost Insulator (Duct, Pipe and Mechanical System Insulation)	\$28.95	\$8.39
Boilermaker	\$37.00	\$24.64
Bricklayer	\$22.15	
Carpenter, Acoustical Ceiling Installation Only	\$17.83	
Carpenter, Form Work Only	\$13.63	
Carpenter, Excludes Acoustical Ceiling Installation, Drywall Hanging. Form Work, and Metal Stud Installation	\$16.86	\$4.17
Caulker	\$15.00	
Cement Mason / Concrete Finisher	\$22.27	\$5.30
Drywall Finisher/Taper	\$13.81	
Drywall Hanger and Metal Stud Installer	\$15.18	
Electrician, Excluding Low Voltage	\$33.50	18% + \$5.45
Electrician, Communication Technician Only	\$33.50	18% + \$5.45
Electrician, Low Voltage Wiring Only	\$20.39	\$3.04
Elevator Mechanic	\$46.83	\$37.335+a+b
HVAC Mechanic, HVAC Electrical Temperature Control Installation and Unit Installation Only	\$35.95	\$11.25
Ironworker, Reinforcing	\$12.27	
Ironworker, Structural	\$26.00	\$7.53
Ironworker, Ornamental	\$27.51	\$8.13
Laborer, Common or General	\$10.75	
Laborer, Mason Tender - Brick	\$11.88	
Laborer, Mason Tender – Cement/Concrete	\$12.00	
Laborer, Pipelayer	\$11.00	
Laborer, Roof Tearoff	\$11.28	
Laborer, Landscape and Irrigation	\$8.00	
Operator, Backhoe/Excavator/Trackhoe	\$15.98	
Operator, Bobcat/Skid Steer/Skid Loader	\$14.00	
Operator, Bulldozer	\$14.00	
Operator, Crane	\$34.85	\$9.85

CLASSIFICATION	HOURLY RATES	FRINGES
Operator, Drill	\$14.50	
Operator, Forklift	\$12.50	
Operator, Grader/Blade	\$23.00	\$5.07
Operator, Loader	\$12.79	
Operator, Mechanic	\$18.75	\$5.12
Operator, Paver (Asphalt, Aggregate, and Concrete)	\$16.03	
Operator, Roller	\$12.00	
Painter (Brush, Roller, and Spray), Excludes Drywall Finishing/Taping)	\$13.07	
Pipefitter, Including HVAC Pipe Installation	\$35.95	\$11.25
Plumber, Excludes HVAC Pipe Installation	\$35.95	\$11.25
Roofer	\$12.00	
Sheet Metal Worker, Excludes HVAC Duct Installation	\$30.24	\$15.89
Sheet Metal Worker, HVAC Duct Installation	\$30.24	\$15.89
Sprinkler Fitter, Fire Sprinklers	\$36.15	\$23.88
Tile Finisher	\$11.32	
Tile Setter	\$14.94	
Truck Driver, Dump Tuck	\$12.39	\$1.18
Truck Driver, Flatbed Truck	\$19.65	\$8.57
Truck Driver, Semi-Trailer	\$12.50	
Truck Driver, Water Truck	\$12.00	\$4.11

SECTION 01 10 00 - SUMMARY

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: Requirements including, but not limited to:
 - 1. Project information.
 - 2. Work covered by Contract Documents.
 - 3. Type of Contract.
 - 4. Work by Owner.
 - 5. Work under separate contracts.
 - 6. Owner-furnished products.
 - 7. Owner-furnished, Contractor-installed products.
 - 8. Access to site.
 - 9. Coordination with occupants.
 - 10. Work restrictions.
 - 11. Specification and Drawing conventions.
 - 12. Construction Schedule.

1.3 PROJECT INFORMATION

- A. Project Name: Garni 215 Lab Renovation
- B. Project Location:
 - 1. One Camino Santa Maria
 - 2. San Antonio, Texas
- C. Owner: St. Mary's University.
- D. Architect: PBK Architects, Inc..
- E. Additional Project contact information is specified in Section00 01 03 Project Directory.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

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

1.5 TYPE OF CONTRACT

A. Project will be constructed under a Competative Sealed Proposal (CSP) contract.

1.6 WORK SEQUENCE

- A. The Work shall be completed according to the Project schedule set forth below.
- B. Occupancy: The Project may be occupied by the Owner's staff as shown below. If so, the premises will be occupied whether or not the Work is completed, regardless of time extensions (if any).
- C. Any Work performed after this date will need to be fully coordinated with the Owner and will be limited to after school hours or on weekends.
- D. Project Schedule:

The following schedule summarizes the major activity dates:

Activity	Dates and Time (As Applicable)
Mandatory Pre-Bid Site Walk	May 21, 2025 May 28, 2025
Bids RFIs Due to Owner	June 4, 2025 June 11, 2025
Bid Opening Date	June 11, 2025 June 18, 2025

Award of Contract	June 16, 2025 June 23, 2025
Construction Start Date	June 23, 2025 June 30, 2025
Substantial Completion	September 16, 2025September 15, 2025
Final Completion Date	October 6, 2025 October 13, 2025

1.7 WORK BY OWNER AND UNDER SEPARATE CONTRACTS

- A. Cooperate fully with the Owner so Work may be carried out smoothly, without interfering with or delaying the work or work by the Owner. Coordinate the Work with Work performed by the Owner.
- B. The Owner reserves the right to let separate contract for Work outside of the scope of this Contract. Cooperate fully with separate contractors so Work on those contracts may be carried out smoothly, without interfering with or delaying Work under this Contract or other contracts. Coordinate the Work of this Contract with Work performed under separate contracts.
- C. Purchase Contracts: The Owner reserves the right to negotiate purchase contracts with suppliers of material and equipment that may be incorporated into the Work. The Owner will assign these purchase contracts to the Contractor. Include costs for purchasing, receiving, handling, storage if required, and installation of material and equipment in the Contract Sum, unless otherwise indicated.
 - 1. The Contractor's responsibilities are same as if the Contractor had negotiated purchase contracts, including responsibility to renegotiate purchase and to execute final purchasing agreements.
- D. Owner-Furnished, Contractor-Installed Products (OFCI): The Owner will furnish products indicated. The Work includes receiving, unloading, handling, storing, protecting, and installing Owner-furnished products and making building services connections when applicable.
- E. Owner-Furnished Products: Coordinate with the Owner.

1.8 ACCESS TO SITE

- A. General: The Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. General: The Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- C. Use of Site: Limit use of Project site to Work in areas and areas within the Contract limits indicated. Do not disturb portions of site beyond areas in which the Work is indicated.
 - 1. Limits:
 - a. Drawings indicate the limits of the construction operations.
 - 2. Driveways, Walkways, and Entrances: Keep driveways, parking areas, drop off points, loading areas, and entrances serving premises clear and available to the Owner, the Owner's employees, students, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- D. Condition of Existing Building: Maintain portions of existing building affected by construction operations in weathertight condition throughout construction period. Repair damage caused by construction operations.

1.9 COORDINATION WITH OCCUPANTS

A. Full Owner-Occupancy: The Owner will occupy site and adjacent building(s) during entire construction period. Cooperate with the Owner during construction operations to minimize

Summary 01 10 00 - 2 conflicts and facilitate the Owner's usage. Perform Work to prevent interference with the Owner's day to day operations. Maintain existing exits unless otherwise indicated.

- 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from the Owner and approval of authorities having jurisdiction.
- 2. Notify the Owner not less than 72 hours in advance of activities that will affect the Owner's operations.
- B. Limited Owner-Occupancy of Completed Areas of Construction: The Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.
 - 1. The Architect shall prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to the Owner acceptance of the completed Work.
 - 2. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited Owner occupancy.
 - 3. Before limited Owner-occupancy, ensure mechanical and electrical systems are fully operational, and required tests and inspections and start up procedures are successfully completed. On occupancy, the Owner shall operate and maintain mechanical and electrical systems serving occupied portions of Work.
 - 4. Upon occupancy, the Owner shall assume responsibility for maintenance and custodial service for occupied portions of Work.

1.10 WORK RESTRICTIONS

- A. Work Restrictions: Comply with restrictions on construction operations. Comply with limitations on use of public streets and with other requirements of Authorities Having Jurisdiction (AHJ).
- B. On-Site Work Hours: Limit Work in the existing building to normal working hours, Monday through Friday, unless otherwise indicated. Coordinate with the Owner when it is necessary to extend working hours or Work on weekends.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by the Owner or others unless permitted under the following conditions and after providing temporary utility services according to requirements indicated:
 - 1. Notify the Owner not less than two weeks in advance of proposed utility interruptions.
 - 2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that result in high levels of noise and vibration, odors, or other disruption to Owner-occupancy with the Owner.
 - 1. Notify the Owner not less than two weeks in advance of proposed disruptive operations.
 - 2. Obtain the Owner's written permission before proceeding with disruptive operations.
- E. Controlled Substances, Firearms, and Explosive Devices: Use of tobacco products, controlled substances, firearms, and explosive devices on the site is not permitted.
- F. Employee Identification: Provide identification tags for Contractor personnel working on site. Require personnel to use identification tags at all times.
- G. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on site.
 - 1. Maintain list of approved screened personnel with Owner's Designated Representative (ODR).

1.11 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: Specifications use certain conventions for style of language and intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

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- 1. Imperative mood and streamlined language are generally used in Specifications. The words "shall," "shall be," or "shall comply with," depending on context, are implied where a colon (:) is used within a sentence or phrase.
- 2. Specification requirements are to be performed by the Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of each Specification section.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in Specifications. One or more of the following are used on Drawings to identify materials and products:
 - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 - 2. Abbreviations: Materials and products are identified by abbreviations.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 CONSTRUCTION SCHEDULE

A. The Owner has a critical need for the Work to begin upon Notice to Proceed and shall be Substantially Complete by <u>September 16, 2025September 15, 2025</u>. There will be no Extensions of Time due to weather except in cases of extreme weather (hurricane, tornado, etc.). The impact of each extreme weather event on schedule shall be discussed by the Architect, the Owner, and the Contractor.

END OF SECTION 01 10 00

SECTION 01 21 00 - ALLOWANCES

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 governing allowances.
 - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to the Contractor. If necessary, additional requirements will be issued by Contingency Allowance.
 - 2. Types of allowances include:
 - a. Lump sum allowances.
 - b. Unit cost allowances.
 - c. Quantity allowances.
 - d. Contingency allowances.
 - e. Testing and inspecting allowances.
- B. Related Sections:
 - 1. Section 00 42 00 Proposal Forms.

1.3 COORDINATION

A. Coordinate allowance items with other portions of the Work.

1.4 LUMP SUM, UNIT COST, AND QUANTITY ALLOWANCES

- A. Allowance shall include cost to the Contractor of specific products and materials ordered by the Owner or selected by the Architect under allowance and shall include taxes, freight, and delivery to site.
- B. Unless otherwise indicated, the Contractor's costs for receiving and handling at site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by the Owner or selected by the Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.
- C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to the Owner, after installation has been completed and accepted.
 - 1. If requested by the Architect, retain and prepare unused material for storage by Owner. Deliver unused material to the Owner's storage space as directed.

1.5 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed by the Architect for the Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's related costs for products and equipment ordered by the Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency allowance will include the Contractor's related costs and reasonable overhead and profit margins.
- D. At Project closeout, credit unused amounts remaining in the contingency allowance to the Owner by Change Order.

1.6 TESTING AND INSPECTING ALLOWANCES

A. Testing and inspecting allowances include the cost of engaging testing agencies, actual tests and inspections, and reporting results.

Allowances 01 21 00 - 1

- B. The allowance does not include incidental labor required to assist the testing agency or costs for retesting if previous tests and inspections result in failure. The cost for incidental labor to assist the testing agency shall be included in the Contract Sum.
- C. Costs of services not required by the Contract Documents are not included in the allowance.
- D. At Project closeout, credit unused amounts remaining in the testing and inspecting allowance to the Owner by Change Order.

1.7 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
 - 1. Include installation costs in purchase amount only where indicated as part of the allowance.
 - 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
 - 3. Submit substantiation of a change in scope of Work, if any, claimed in Change Orders related to unit cost allowances.
 - 4. The Owner reserves the right to establish the quantity of Work in place by independent quantity survey, measure, or count.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or the Contractor's handling, labor, installation, overhead, and profit.
 - 1. Do not include the Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of Work has changed from what could have been foreseen from information in the Contract Documents.
 - 2. No change to the Contractor's indirect expense is permitted for selection of higher or lower priced materials or systems of the same scope and nature as originally indicated.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related Work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1 Contingency
 - 1. The Contractor shall include the amount indicated below in their Base Proposal as a contingency to cover the cost of hidden, concealed, or otherwise unforeseen conditions which develop during completion of the work. The Contractor shall be allowed to recover all costs associated with the completion of work under this contingency, however, no overhead or profit will be allowed.
 - 2. Amount: \$40,000 (USD)

END OF SECTION 01 21 00

Allowances 01 21 00 - 2

SECTION 01 23 00 - ALTERNATES

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. Description of Alternates.
 - 2. Procedures for pricing Alternates.
 - 3. Documentation of changes to Contract Price and Contract Time.

1.3 DEFINITIONS

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Alternate

1.4 ADMINISTRATIVE REQUIREMENTS

A. The Alternates listed in this Section take precedence over those listed elsewhere in the Contract Documents. In case of conflicting requirements, the requirements listed herein shall govern.

1.5 ACCEPTANCE OF ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted alternates will be identified in the Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work to integrate the Work of each alternate.

1.6 SCHEDULE OF ALTERNATES

- A. Alternate No. 01 Restroom:
 - 1. Base Bid Item: No Work.
 - 2. Alternate Item: Demolish existing partitions, flooring, and ceiling between Offices 212 and 212A, as indicated on Drawing. Provide Restroom 212B as indicated on Drawings.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01 23 00

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SECTION 01 25 13 - PRODUCT SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Specified product compliance, and product quality assurance.
 - 2. Specific administrative and procedural requirements for handling requests for substitutions made prior to award of Contract.
 - 3. Requirements for product delivery, storage, and handling.
- B. Related Sections
 - 1. Section 00 21 16 Instructions to Proposers (CSP): Product options and procedures for submittal of requests for substitutions during the Proposal period.
 - 2. Section 01 21 00 Allowances.
 - 3. Section 01 25 13.01 Request for Substitution Form.
 - 4. Section 01 40 00 Quality Requirements.
 - 5. Section 01 42 16 Definitions.

1.3 DEFINITIONS

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Equipment.
 - 2. Materials.
 - 3. Product.

1.4 QUALITY ASSURANCE

- A. Source Limitations:
 - 1. To the fullest extent possible, provide products of the same generic kind, from a single source, for each unit of work.
 - a. When it is discovered that specific products are available only from sources that do not or cannot produce an adequate quantity to complete project requirements in a timely manner, consult with the Architect for a determination of which product qualities are most important before proceeding. The Architect will designate those qualities, such as visual, structural, durability, or compatibility, that are most important. When the Architect's determination has been made, select products from those sources that produce products that possess the most important qualities, to the fullest extent possible.
- B. Compatibility of Options:
 - 1. Compatibility of products is a basic requirement of product selection. When the Contractor is given the option of selecting between two or more products for use on the project, the product selected must be compatible with other products previously selected, even if the products previously selected were also Contractor options. The complete compatibility between the various choices available to the Contractor is not assured by the various requirements of the Contract Documents, but must be provided by the Contractor.
- C. Or Equal:
 - 1. Where the phrase "or equal", "or equivalent", "or Architect-approved equal", or similar phrasing, occurs in the Contract Documents, do not assume that materials, equipment, or methods of construction will be acceptable by the Architect unless the item has been specifically reviewed for this Work by the Architect.
 - 2. The decision of the Architect shall be final.

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- D. Where a proposed substitution involves the work of more than one trade, the Contractor shall coordinate the work so as to provide uniformity and consistency and to assure the compatibility of products.
- E. Foreign Product Limitations:
 - 1. "Foreign products" as distinguished from "domestic products" are defined as products that are either manufactured substantially (50 percent or more of value) outside of the United States and its possessions, or produced or supplied by entities known to be substantially owned (more than 50 percent) by persons who are not citizens of nor living within the United States and its possessions.
 - a. Except under one of the following conditions, select and provide domestic, not foreign, products for inclusion in the Work.
 - 1) There is no domestic product available that complies with the requirements of the Contract Documents.
 - 2) Available domestic products that comply with the requirements of the Contract Documents are available only at prices or other procurement terms that are substantially higher (25 percent or more) than for available foreign products that comply with the requirements of the Contract Documents.
 - 3) At the discretion of the Architect or the Owner.
 - b. Final determination and acceptance will be the responsibility of the Architect.
- F. Standards: Refer to Section 01 40 00 Quality Requirements for the applicability of industry standards to the products specified for the Project, and for the acronyms used in the text of the Specification Sections.

1.5 SUBSTITUTIONS OF PRODUCTS

- A. Products described in Contract Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution. Materials and equipment named in, and the procedures covered by these specifications have been selected as a standard because of quality, particular suitability, or record of satisfactory performance. It is not intended to preclude the use of equal or better products provided that same meets the requirements of the specifications and is approved in an Addendum as a substitution prior to the submission of proposals.
- B. No substitution will be considered prior to receipt of proposals unless written request for approval has been received by the Architect at least seven days prior to the date for receipt of proposals. Each such request shall include name of the product for which it is to be substituted and a complete description of the proposed substitute including drawings, product information/data sheets, performance and test data, and any other information necessary for an evaluation. The Architect's decision of approval or disapproval of a proposed substitution shall be final.
- C. If the Architect approves any proposed substitution prior to receipt of proposals, such approval will be set forth in an Addendum. Offerors shall not rely upon approvals made in any other manner.
- D. The Architect and the Owner reserve the right to disapprove the use of any manufacturer who, in their judgment, is unsuitable for use on the Project and that decision will be final.
- E. The following are not considered as substitutions:
 - 1. Revisions to the Contract Documents, when requested by the Owner, the Architect, or any of their consultants, are considered "changes" and not "substitutions."
 - 2. Specified Contractor-options on products and construction methods included in Contract Documents are choices made available to the Contractor and are not subject to the requirements specified in this Section for substitutions.
 - 3. Except as otherwise provided in the Contract Documents, the Contractor's determination of and compliance with governing authorities do not constitute "substitutions" and do not

Product Substitution Procedures 01 25 13 - 2

constitute a basis for change orders.

- F. The following may be considered as a reason for a request for substitution:
 - 1. The request is directly related to an "or approved equal" clause or similar language in the Contract Documents.
 - 2. The specified product or method of construction cannot be provided within the Contract Time in accordance with paragraph below concerning availability of specified items.
 - 3. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
 - 4. A substantial advantage is offered to the Owner, in terms of cost, time, energy conservation or other consideration of merit, after deducting offsetting responsibilities the Owner may be required to bear. These additional responsibilities may include such considerations as additional compensation to the Architect for redesign and evaluation services, the increased cost of other work by the Owner or separate contractors, and similar considerations.
 - 5. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that substitution will overcome the incompatibility.
 - 6. The specified product or method of construction cannot be coordinated with other materials, and where Contractor certifies that the proposed substitution can be coordinated.
 - 7. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provides the required warranty.
- G. Availability of Specified Items:
 - 1. Verify prior to submittal of Proposal that all specified items will be available in time for installation during orderly and timely progress of the work.
 - a. In the event specified items will not be so available, notify the Architect prior to receipt of Proposals. Submit Request for Substitutions in accordance with this section.
 - b. The request will not be considered if the product or method cannot be provided as a result of the Contractor's failure to pursue the work promptly or coordinate activities properly.
 - 2. Costs of delays because of non-availability of specified items, when such delays could have been avoided by the Contractor, will be back-charged as necessary and shall not be borne by the Owner.
- H. A request constitutes a representation that the Offeror:
 - 1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
 - 2. Will provide same warranty for substitution as for specified product, except when inability to provide specified Warranty is reason for request for substitution as described above.
 - 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to the Owner.
 - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
 - 5. Will reimburse the Owner and pay for all costs, including the Architect's redesign and evaluation costs resulting from the use of the proposed substitution, or for review or redesign services associated with re-approval by Authorities Having Jurisdiction (AHJ).

I. No substitutions will be considered after Award of Contract.

1.6 SUBSTITUTION REQUEST SUBMITTAL

- A. Requests for Substitutions:
 - 1. Submit electronic copy of each request for substitution. In each request, identify the product or fabrication or installation method to be replaced by the substitution; include

Product Substitution Procedures 01 25 13 - 3 related Specifications Section and Drawing numbers, and complete documentation showing compliance with the requirements for substitutions. Include, as appropriate, with each request, the following information:

- a. Substitution Request Form:
 - 1) Use 01 25 13.01 Request for Substitution Form.
 - 2) Include complete information as required in the Substitution Form. Incomplete information will result in automatic rejection of the substitution request.
- b. Product data, drawings and descriptions of products, fabrication and installation procedures.
- c. Samples, where applicable or requested. Provide three copies.
- d. A detailed comparison of the significant qualities of the proposed substitution with those of the work originally 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. Coordination information, including a list of changes or modifications needed by other parts of the work and to construction performed by the Owner and separate contractors that will become necessary to accommodate the proposed substitution.
- f. A statement indicating the effect the substitution will have on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
- g. Cost information, including a proposal of the net change, if any in the Contract Sum.
- h. Certification by the Contractor to the effect that, in the Contractor's opinion, after thorough evaluation, the proposed substitution will result in work that in every significant respect is equal-to or better than the work required by the Contract Documents, and that it will perform adequately in the application indicated. Include the Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.
- i. A statement indicating the Contractor will reimburse the Owner and pay for all costs, including Architect's re-design and evaluation costs resulting from the use of the proposed substitution.
- j. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- k. Submittals not requested will not be recognized or processed.
- B. Architect's Action:
 - 1. If necessary, the Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. The Architect will notify the Contractor of acceptance or rejection of proposed substitution within fifteen days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Use product specified if the Architect does not issue a decision on use of a proposed substitution within time allocated.
- C. Work-Related Submittals:
 - 1. The Contractor's submittal of, and the Architect's acceptance of, Shop Drawings, Product Data, or Samples which are related to work not complying with the Contract Documents, does not constitute an acceptance or valid request for a substitution, nor approval thereof.

1.7 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. General:
 - 1. Deliver, store, and handle products in accordance with manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including

theft. Control to prevent overcrowding of construction spaces or overloading of structure. In particular, coordinate delivery and installation to ensure minimum holding or storage times for items known or recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other sources of loss.

- a. Deliver products to the site in the manufacturer's sealed containers or other packaging system, complete with labels intact, and instructions for handling, storage, unpacking, installing, cleaning and protecting.
- b. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation or potential degradation of product.
- c. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- d. Store products at the site or in a bonded and insured off-site storage facility or warehouse in a manner that will facilitate inspection and measurement of quantity or counting of units. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.
- e. Store heavy materials away from the project structure or in a manner that will not endanger the supporting construction.

PART 2 PRODUCTS

2.1 SUBSTITUTIONS

- A. Condition:
 - 1. The Contractor's request for substitution will be received and considered when extensive revisions to Contract Documents are not required, when the proposed changes are in keeping with the general intent of the Contract Documents, when the request is timely, fully documented and properly submitted, and when one or more of the above conditions are satisfied, all as judged and determined by the Architect; otherwise the requests will be returned without action except to record non-compliance with these requirements.
- B. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than fifteen days prior to time required for preparation and review of related submittals.
 - 1. Conditions: The Architect will consider the Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, the Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect the Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - 2. Requested substitution is compatible with other portions of the Work.
 - a. Requested substitution has been coordinated with other portions of the Work.
 - b. Requested substitution provides specified warranty.
 - c. 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.
- C. Substitutions for Convenience: Not allowed unless otherwise indicated.

2.2 GENERAL PRODUCT COMPLIANCE

A. General:

- 1. Requirements for individual products are indicated in the Contract Documents; compliance with these requirements is in itself a contract requirement. These requirements may be specified in any one of several different specifying methods, or in any combination of these methods. These methods include the following:
 - a. Proprietary/Semi-Proprietary.
 - b. Non-Proprietary.
 - c. Descriptive.
 - d. Performance.
 - e. Compliance with Standards, Codes, and Regulations.
- 2. Compliance with codes, compliance with graphic details, allowances, and similar provisions of the Contract Documents also have a bearing on the selection process.
- B. Procedures for Selecting Products:
 - 1. The Contractor's options in selecting products are limited by requirements of the Contract Documents and governing regulations. They are not controlled by industry traditions or procedures experienced by the Contractor on previous construction projects. Required procedures include, but are not limited to the following for the various indicated methods of specifying:
 - a. Proprietary and Semi-Proprietary Specification Requirements:
 - 1) Single Product Name: Where only a single product or manufacturer is named, provide the product indicated, unless the specification indicates the possible consideration of other products. Advise the Architect before proceeding, when it is discovered that the named product is not a reasonable or feasible solution.
 - 2) Two or More Product Names: Where two or more products or manufacturers are named, provide one 1) of the products named, at Contractor's option. Exclude products that do not comply with specification requirements. Do not provide or offer to provide an unnamed product, unless specification indicates possible consideration of other products. Advise the Architect before proceeding where none of the named products comply with specification requirements, or are not feasible for use. Where products or manufacturers are specified by name, accompanied by the term "or approved equal" or similar language, comply with this Section regarding "substitutions" to obtain approval from Architect for use of an unnamed product.
 - b. Non-Proprietary Specification Requirements: Where specifications name products or manufacturers that are available and may be submitted for incorporation in the Work, but do not restrict the Contractor to use of these products only, the Contractor may, at their option, use any available product that complies with Contract requirements.
 - c. Descriptive Specification Requirements: Where the specifications describe a product or assembly generically, in detail, listing the exact characteristics required, but without use of a brand name, provide products or assemblies that provide the characteristics indicated and otherwise comply with Contract requirements.
 - d. Performance Specification Requirements: Where the specifications require compliance with indicated performance requirements, provide products that comply with the specific performance requirements indicated, and that are recommended by the manufacturer for the application indicated. Manufacturer's recommendations may be contained in published product literature, or by manufacturer's individual certification of performance. General overall performance of a product is implied where product is specified for specific performances.
 - e. Compliance with Standards, Codes, and Regulations: Where specifications require only compliance with an imposed standard, code, or regulation, the Contractor has option of selecting a product that complies with specification requirements, including standards, codes, and regulations.
 - f. Visual Matching: Where matching an established sample is required, final judgement of whether a product proposed by the Contractor matches sample satisfactorily will be

Product Substitution Procedures 01 25 13 - 6 determined by the Architect. Where there is no product available within specified product category that matches sample satisfactorily and also complies with other specified requirements, comply with provisions of this Section regarding "substitutions" and other Contract Documents for "change orders" for selection of a matching product in another product category, or for non-compliance with specified requirements.

- g. Visual Selection: Except as otherwise indicated, where specified product requirements include the phrase "...as selected from the manufacturer's standard colors, patterns, textures..." or similar phrases, the Contractor has option of selecting product and manufacturer, provided selection complies with other specified requirements. The Architect is subsequently responsible for selecting color, pattern, and texture from product line selected by the Contractor.
- h. Allowances: Refer to individual sections of the specifications and Section 01 21 00 -Allowances, Allowances for an indication of product selections that are controlled by established allowances, and for the procedures required for processing such selections.
- C. Producer's Statement of Applicability:
 - 1. Where individual specification sections indicate products that require a "Statement of Applicability" from the manufacturer or other producer, submit a written-certified statement from the producer stating that the producer has reviewed the proposed application of the product on the project. This statement shall state that the producer agrees with or does not object to the Architect's specification and the Contractor's selection of the product on the project is suitable and proper.

PART 3 EXECUTION

3.1 INSTALLATION OF PRODUCTS

- A. General: Except as otherwise indicated in individual sections of these specifications, comply with the manufacturer's instructions and recommendations for installation of the products in the applications indicated.
- B. Anchor each product securely in place, accurately located and aligned with other work.
- C. Clean exposed surfaces and protect surfaces as necessary to ensure freedom from damage and deterioration at time of acceptance.
- D. Products and assemblies shall be installed complete, in-place, watertight and structurally sound.

3.2 INSTALLATION OF APPROVED SUBSTITUTIONS

- A. Coordinate all approved substitutions with adjacent work.
- B. Comply with the manufacturer's and/or supplier's instructions and recommendations for installation of the products in the applications indicated.
- C. Provide all items required by manufacturer and/or supplier regarding installation, i.e. supplemental supports, anchors, fasteners, painting, etc. whether or not indicated or specified.

END OF SECTION 01 25 13

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SECTION 01 25 13.01 - REQUEST FOR SUBSTITUTION FORM

PROJECT INFORMATION

PROJECT NAME AND NUMBER: _____

CONTRACT AWARD DATE:

TO:

SUBSTITUTION REQUESTED BY: _____

REQUEST MADE DURING:

_____ Bidding

____ Construction Period

CAUSE FOR REQUEST: _____

SUBSTITUTION INFORMATION

SUBMIT IN ACCORDANCE WITH SECTION 01 33 00 - SUBMITTAL PROCEDURES.

1. Technical data, cost, and time information relating to changes to Construction Documents required by proposed substitution.

2. Detailed comparison of proposed substitution and specified product including but not limited to warranty, significant variations, qualifications of manufacturers, and maintenance.

3. Complete technical data, detailed shop drawings, samples, installation procedures, warranty, and substantiating data marked to indicate equivalent quality and performance to that specified. Manufacturer sell sheets are not acceptable submittals.

BASIS OF DESIGN

Specified Manufacturer:
Specified Product:
Where Specified: Drawing (Sheet Number and Detail/Schedule):
Specification: (Section Number and Paragraph):
PROPOSED SUBSTITUTION

We submit for consideration the following manufacturer / product in lieu of the specified item for the above referenced project:

Proposed Manufacturer:	
•	

Proposed Product:

COST AND TIME

Does proposed substitution affect adjacent work, Construction Documents, Cost, Schedule, Quality, or related submittals?

_____No Yes

The Contractor is responsible for costs and additional time associated with proposed substitution including costs incurred by the Architect for evaluation of substitution and changes to the documents. Describe costs for changes to design, including engineering and detailing costs caused by requested substitution.

Cost Savings Realized by the Owner (\$ US):

WARRANTY

Is warranty for proposed substitution the same as for specified product?

____Yes No If No, Explain Differences: _____

CONTRACTOR CERTIFICATION:

In making this request for substitution, the Contractor certifies that:

1. Proposed substitution has been thoroughly researched and evaluated and determined as equivalent or superior to specified product or material, will fit into space provided, and is compatible with adjacent materials.

2. Proposed substitution will provide the same or better warranty at no additional cost to the Owner.

3. Cost data is complete and includes related costs under the Contract. Claims for additional costs related to the proposed substitution that may subsequently become apparent are waived.

4. The Contractor shall assume responsibility for delays and costs caused by acceptance proposed substitution, if approved, are accepted by the Contractor unless delays and costs are specifically mentioned and approved in writing by Owner and Architect.

5. The Contractor shall assume liability for performance of the substitution.

6. Installation of the proposed substitution is coordinated with the Work and with changes required to the Work.

7. The Contractor shall reimburse the Owner and the Architect for evaluation and redesign services associated with the substitution request and, when required, for approval by authorities having jurisdiction.

PREVIOUS USE

Has the proposed substitute manufacturer / product been installed on previous PBK Architects, Inc. projects within the past two years?

No	
Yes	
If Yes, list project(s):	
Project:	
Owner:	
Contact:	
Project:	
Owner:	
Contact:	
SUBMITTED BY:	
Contractor's Signature:	

Signature shall be by the individual authorized to legally bind the Contractor to the above terms. Failure to provide legally binding signature will result in retraction of acceptance.

Firm:

Telephone: _____ Date: _____

SUBSTITUTION EVALUATION

FOR USE BY ARCHITECT:

Accepted Accepted as Noted Not Accepted F	Received too Late
Ву:	Date:
Remarks:	

FOR USE BY OWNER:

____ Accepted ____ Not Accepted

By: _____ Date: _____

Remarks: _____

END OF SECTION 01 25 13.01

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SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes: Administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Work:
 - 1. Section 01 25 13 Product Substitution Procedures

1.3 MINOR CHANGES IN THE WORK

A. The Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document AIA G710 Architect's Supplemental Instructions.

1.4 PROPOSAL REQUESTS

- A. Owner Initiated Proposal Requests: The Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by the Architect are not instructions either to stop Work in progress or to execute the proposed change.
 - 2. After receipt of Proposal Request, submit quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. The Contractor Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to the Architect.
 - 1. Include statement outlining reasons for the change and the effect of the change on the Work. Provide complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include costs of labor and supervision directly attributable to the change.
 - 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- 6. Comply with requirements in Section 01 25 13 Product Substitution Procedures if the proposed change requires substitution of one product or system for product or system specified.
- 7. Proposal Request Form: Use AIA Document AIA G709.
- C. The Contractor has 10 business days to submit pricing or submit resubmittal pricing to the Architect after issuance of a Change Proposal Request (CPR) or Change Proposal.
- D. Regardless of initiated change request pricing, a fully developed and completed change pricing to be submitted.

1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: When an allowance is specified, refer to Section 01 21 00 Allowances for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.
 - Allowance Adjustment: To adjust allowance amounts, base each Change Proposal Request (CPR) on the difference between purchase amount and the allowance, multiplied by final measurement of Work in place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
 - a. Include installation costs in purchase amount only where indicated as part of the allowance.
 - b. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
 - c. Submit substantiation of a change in scope of Work, if any, claimed in Change Orders related to unit cost allowances.
 - d. The Owner reserves the right to establish the quantity of Work in place by independent quantity survey, measure, or count.
 - 2. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or the Contractor's handling, labor, installation, overhead, and profit. Submit claims within 7 days of receipt of the Change Order authorizing work to proceed. The Owner will reject claims submitted later than 7 days after authorization.

1.6 CHANGE ORDER PROCEDURES

A. On the Owner's approval of a Work Changes Proposal Request, Architect will execute a Change Order also requiring signatures of the Owner and the Contractor on AIA Document AIA G701.

1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: The Architect may issue a Construction Change Directive on AIA Document AIA G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Construction Change Directive contains a complete description of change in the Work and designates the method to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of Work required by the Construction Change Directive. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01 26 00

Contract Modification Procedures 01 26 00 - 2

SECTION 01 29 00 - PAYMENT PROCEDURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes: Administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.3 DEFINITIONS

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Schedule of Values.
 - 2. Pencil Copy.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of the Contractor's construction schedule.
 - 1. Coordinate line items in Schedule of Values with administrative forms and schedules, including the following:
 - a. Application for Payment forms with continuation sheets.
 - b. Updated Submittal schedule.
 - c. Items required to be indicated as separate activities in updated the Contractor's construction schedule.
 - 2. Submit Schedule of Values to the Architect at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Application for Payment. The Contractor's standard form or electronic media printout will be considered but must be approved by the Owner.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 - 2. Arrange schedule of values consistent with format of AIA G703.
 - 3. Arrange Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest onehundredth percent, adjusted to total 100 percent.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment Rentals.
 - 4) General Conditions.

- (a) Supervisor.
- (b) Submittals.
- (c) Close-out.
- (d) Field Engineering.
- (e) Daily Clean-up.
- (f) Final Clean-up.
- 4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
- 5. Provide separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on site and items stored off site. Include evidence of insurance.
- 6. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line item value of unit cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
- 7. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual Work in place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
- 8. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Submit preliminary (pencil) copy of proposed values to the Architect or the Architect's field representative and the Owner for review by 20th day of the month. Allow 48 hours for comments.
- B. Once preliminary (pencil) approved, submit electronic copy of notarized originals of each application on AIA G702 Application and Certificate for Payment and AIA G703 Continuation Sheet for AIA G702 or other similar form approved by the Owner.
 - 1. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
 - 2. Submit updated construction or recovery schedule with each Application for Payment.
- C. Payment Period: Submit at intervals stipulated in the Agreement in accordance with Section 00 73 00 Supplementary Conditions.
- D. Only materials stored on the project site shall be paid for unless the materials are stored in a bonded warehouse.
- E. Substantiating Data: When the Architect requires substantiating information, submit data justifying dollar amounts in question. Items which may be requested by the Architect or Owner to substantiate costs include, but are not limited to the following:
 - 1. Current Record Documents as specified in Section01 77 00 Closeout Procedures maintained.
 - 2. Labor time sheets, purchase orders, or similar documentation.
 - 3. Affidavits attesting to off-site stored products.

Garni 215 Lab Renovation St. Mary's University April 25, 2025

PART 2 PRODUCTS NOT USED PART 3 EXECUTION NOT USED

END OF SECTION 01 29 00

Payment Procedures 01 29 00 - 3 This page intentionally left blank

SECTION 01 29 73 - SCHEDULE OF VALUES

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 necessary to prepare a Schedule of Values.

1.3 DEFINITIONS

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Schedule of Values.

1.4 DESCRIPTION

- A. Work Included: Provide a detailed breakdown of the agreed Contract Sum showing values allocated to each of the various parts of the work, as specified herein and in other provisions of the Contract Documents.
- B. Coordinate requirements of this Section with the requirements of the General and Supplementary Conditions of the Contract concerning Schedule of Values.

1.5 QUALITY ASSURANCE

- A. Use required means to assure arithmetical accuracy of the sums described.
- B. When so required by the Owner, provide copies of the subcontracts or other data acceptable to the Owner, substantiating the sums described.

1.6 SUBMITTALS

- A. Prior to the first Application for Payment, submit a proposed schedule of values to the Owner, as outlined below:
 - Meet with the Owner and determine additional data, if any, required to be submitted.
 a. Secure the Owner's approval of the schedule of values prior to submitting first Application for Payment.

1.7 SCHEDULE OF VALUES

- A. Schedule of Values shall be broken down into item costs for each specification section as a minimum. After review by Owner, Schedule of Values shall be broken down into further items as required. (See following list and refer to the enclosed sample.). In addition, total each Specification Division separately.
- B. Schedule of Values Items in addition to Specification Sections.
 - 1. Mobilization.
 - 2. Clean Up.
 - 3. Building Permit.
 - 4. Bonds, Insurance.
 - 5. Mechanical Accessories.
 - a. Demolition.
 - 6. Rough-In Labor (Electrical).
 - 7. Rough-In Material (Electrical).
 - 8. Finish Labor (Electrical).
 - 9. Finish Material (Electrical).
 - 10. Allowances (listed separately).
 - 11. Record drawings and close-out documents.
 - 12. Submittals listed separately per mechanical, electrical and plumbing.

Schedule of Values 01 29 73 - 1

Garni 215 Lab Renovation St. Mary's University April 25, 2025

- 13. Roof warranty as a line item.
- 14. Donated items individually itemized at \$0.00 (zero dollars).

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 SCHEDULE OF VALUES

A. Refer to following sample.

END OF SECTION 01 29 73

SECTION 01 29 73

SCHEDULE OF VALUES - SAMPLE

Itom	Description of Work	Schodulod	Work Com	plotod	Storod	Total	0/_	Balanco	Potainago
	Description of work	Value	Dreudeure		Matariala	Completed	/0		Relainage
INO.		value	Previous	Inis	waterials	Completed		TO FINISH	
			Арр.	Арр.					
	Div. 1 - General Reqs.								
	Site Work General Conditions								
	Supervision								
	Mobilization								
	Bonds & Insurance								
	Permits								
	Contractor's Fee								
	Close-Out Documents								
	Div. 1 - Total								
	Div. 2 - Existing Conditions								
	Demolition (As applicable)								
	Erosion Control								
	Div. 2 - Total								
<u> </u>	Div. 3 - Concrete								
	Cana & Dacma								
	Caps & Beams								
	Slab on Grade								
	Cooling Tower Basin								
	Misc Bldg Conc								
	Floor Sealer								
	Rebar Matl								
	Rebar Labor								
	Lt.Wt.Insul Fill - Materials								
	Lt.Wt.Insul Fill - Labor								
	Submittals/Close-Out Documents								
	Supervision Clean-up								
	Div. 3 - Total								
	Div 4 - Masonry								
	Brickwork Labor								
	Brickwork Motio								
	Dilckwork - Massamu Labor								
	Concrete Masonry - Labor								
	Concrete Masonry - Materials								
	Str. Glazed Tile-Labor				1				
	Str. Glazed Tile-Materials				1				
	Submittals/Close-Out Documents								
	Supervision Clean-up								
	Div. 4 - Total								
	Div 5 - Metals								
	Structural Steel - Labor				1				
	Structural Steel - Materials				1				
	Alternating Stairs								
	Misc. Steel - Materials				1				
	Steel Joists - Materials				1				
	It Gauge Steel Framing Labor				1				
	Lt. Cauge Steel Framing-Labor				1				
					1				
	Metal Decking - Labor								
	Expansion Joint Covers				1				
	Metal Decking - Matls				1				
	Detailing				1				
1	Submittals/Close-Out Documents								
L	Supervision Clean-up						L		
	Div. 5 - Total								
-				•	•		•		• I

SECTION 01 29 73

SCHEDULE OF VALUES - SAMPLE

Item	Description of Work	Scheduled	Work Corr	pleted	Stored	Total	%	Balance	Retainage
No		Value	Previous	This	Materials	Completed	,.	To Finish	. totallago
110.		Value	Ann	Ann	Materialo	Completed			
			лµр.	лүр.					
	Div. 6 - Wood & Plastics								
	Rough Carpentry - Labor								
	Rough Carpentry - Materials								
	Millwork - Labor								
	Millwork - Materials								
	Submittals/Close-Out Documents	-							
	Div. 6 - Total								
	Div 7 Thormal and								
	Div. 7 - Thermal and								
	Moisture Protection								
	Waterpfng / Dampprfng-Matis								
	Waterpfng / Dampprfng-Labor								
	Building Insulation - Labor								
	Building Insulation - Materials								
	Fireproofing - Labor								
	Fireproofing - Materials								
1	Metal Roof - Labor								
	Metal Roof - Materials								
	Metal Roof Guarantee								
	Built-up Roofing Labor								
	Built-up Roofing Materiala								
	Built-up Roofing-Materials								
	Built-up Rooting Guarantee								
	Roof Accessories								
	Building Sheet Metal - Labor								
	Building Sheet Metal - Matls								
	Bldg. Sheet Metal Guarantee								
	Roof Curbs								
	Roof Hatches								
	Sealants								
	Submittals/Class Out Documents								
	Supervision Clean-up	l							
	Div. 7 - Total								
	Div. 8 - Doors and Frames								
	Finish Carpentry/Door - Labor								
	Finish Hardware - Matls								
	Thresholds & Seals - Matls+B66								
	Hollow Metal Doors &								
	Frames - Matls								
1	Plastic Faced Doors-Matls								
	Overhead Doors & Grilles-								
	Labor								
	Overhead Doors & Grillos								
	Motio				1				
	Ivialis								
	Alum. Entrances & Store-								
1	fronts - Labor								
1	Alum. Entrances & Store-								
1	fronts - Matls								
1	Alum. Windows - Labor								
	Alum Windows - Matls								
	Glass & Glazing-Labor								
	Class & Clazing Matte								
	Glass & Glazing-Walls				1				
	Submittals/Close-Out Documents								
L	Supervision Clean-up								
	Div. 8 - Total		l	l			I		

SCHEDULE OF VALUES - SAMPLE
ltem	Description of Work	Scheduled	Work Completed		Stored	Total	%	Balance	Retainage
No	Description of work	Value	Drawiewe	This	Matariala	Completed	70	To Linich	rtetainage
INO.		value	Previous	THIS	watenais	Completed		TO FINISH	
			Арр.	Арр.					
	Div. 9 - Finishes								
	Lath & Plaster-Labor								
	Lath & Plaster-Matls								
	Gynsum Wallboard								
	Systems Labor								
	Systems - Labor								
	Gypsum vvaliboard								
	Systems - Matis								
	Ceramic Tile - Labor								
	Ceramic Tile - Matls								
	Quarry Tile - Labor								
	Quarry Tile - Matls								
	Terrazzo-Labor								
	Terrazzo-Matis								
	Acoustic Cla Labor								
	Acoustic Clg Labor								
	Acoustic Cig Matis								
	Acoustic Wall Panels								
	Resilient Flooring - Labor				1				
	Resilient Flooring - Matls								
	Carpet - Labor								
	Carpet - Matis								
	Athletic Flooring - Materials								
	Athletic Flooring - Labor								
	Floor Sealer								
	Painting - Labor								
	Painting - Mtls								
	Submittals/Close-Out Documents								
	Supervision Clean-up								
	Div. 9 - Total								
	Div. 10 - Specialties								
	Visual Display Boards &								
	Tackboards - Materials								
	Vieuel Diaplay Baarda 8								
	Tackboards - Labor								
	Toilet Partitions - Labor								
	Toilet Partitions - Matls								
	Louvers								
	Aluminum Flag Pole								
	Graphics								
	Lockers								
	Cubiele Curtaine & Treak								
	Cubicle Curtains & Track								
	Fire Extinguisher Cabinets				1				
	Demountable Partitions-Labor				1				
	Demountable Partitions-Matls				1				
	Shelving				1				
	Toilet Room Accessories-Matls				1				
	Toilet Room Accessories-I br				1				
	Submittals/Close-Out Documents				1				
	Supervision Clean-up	l			1				
			1					1	
	Div. 10 - 10tal								
	Div. 11 - Equipment				1				
	Stage Curtains								
	Misc. Appliances				1				
	Food Service Egot-Labor				1				
	- Sou oor noo Eqpi-Labor		1	1	1	1		1	1

ltem	Description of Work	Scheduled	Work Con	nleted	Stored	Total	%	Balance	Retainage
No	Description of Work	Valuo	Provious	Thic	Matoriale	Completed	70	To Einich	rtetainage
INO.		value	Ann	Ann	Materials	Completed		101111311	
	Faced Operations Front Matte		Арр.	Арр.					
	Food Service Eqpt-Matis								
	Submittals/Close-Out Documents								
	Supervision Clean-up								
	Div. 11 - Total								
	Div. 12 - Furnishings								
	Horizontal Blinds								
	Projection Screens								
	Casework - Labor								
	Casework - Matls								
	Science Casework - Labor								
	Science Casework - Matls								
	Submittals/Close-Out Documents								
	Supervision Clean-up	l							
	DIV. 12 - 10tal								
	Div. 13 - Specialties								
	Stage Curtains and Draperies								
	Music Instrument Storage								
	Nusic Instrument Storage								
	Bleachers								
	Press Box								
	Pre-eng. Metal Bldg.								
	Stadium Seating								
	Submittals/Close-Out Documents								
	Supervision Clean-up								
	Div. 13 - Total								
	Div. 14 - Conveying Systems								
	Platform Lifts								
	Elevators								
	Submittals/Close-Out Documents								
	Supervision Clean-up								
	Div. 14 - Total								
	Div 21 22 Blumbing								
	Div. 21, 22 - Plumbing								
	Shop Drawings								
	As-Builts/Close-Out/								
	O&M Manuals								
	Sanitary Underground -								
	Labor								
	Sanitary Underground -								
	Matls								
	Storm Underground -								
	Labor								
	Storm Underground -								
	Motle								
	Naus Demostie Water Labor								
	Domestic water - Labor								
	Domestic vvater - Matis								
	Plumbing Insulation - Matls								
	Plumbing Insulation - Labor								
	Gas Piping - Matls								
	Gas Piping - Labor								
	Grease Trap								
	Plumbing Fixtures - Matts								
	Plumbing Fixtures - Labor								
	Coordination Drawings								
	Coordination Drawings	l	1	1	1	1	1	I	I

Item	Description of Work	Scheduled	Work Completed		Stored	Total	%	Balance	Retainage
No.		Value	Previous	This	Materials	Completed	-	To Finish	
			App.	App.					
	Submittals/Close-Out Documents								
	Supervision Clean-up								
	Div 21 22 Plumbing - Total								
	Div. 23 - Mechanical								
	Shop Drawings								
	As-Builts/Close-Out/								
	O&M Manuals								
	Chillers - Matls								
	Chillers - Labor								
	Cooling Towers - Matls								
	Cooling Towers - Labor								
	Boilers - Matls								
	Boilers - Labor								
	AHU's - Matis								
	AHU's - Labor								
	Fans - Matis								
	Fans - Labor								
	Grilles - Matls								
	Grilles - Labor								
	Ductwork - Matis								
	Ductwork - Labor								
	Pumps - Mtls								
	Pumps - Labor								
	Water Treatment - Labor								
	Water Treatment - Matis								
	Isolation - Labor								
	Isolation - Matis								
	Pipe Flex - Matis								
	Pipe Flex - Labor								
	Connections								
	Sheet Metal - Matls								
	Sheet Metal - Labor								
	Duct Insulation - Matis								
	Duct Insulation - Labor								
	Pipe Insulation - Matls								
	Pipe Insulation - Labor								
	VAV Boxes - Materials								
	VAV Boxes - Labor								
	Refrigerant Monitor - Matls								
	Refrigerant Monitor - Labor								
	Unit Heaters - Materials								
	Unit Heaters - Labor								
	Startup								
	Controls - Matls								
	Control - Labor								
	Engineer / Submittals								
	Modules / End Devices								
	Low Voltage Wiring								
	Startup								
	Close-Out Documents								
	Fire Sprinkler								
	Engineer / Submittals								
	Piping - Materials								
	Piping - Labor								
	Equipment - Materials								

Item	Description of Work	Scheduled	Work Corr	pleted	Stored	Total	%	Balance	Retainage
No.		Value	Previous	This	Materials	Completed		To Finish	
			App.	App.					
	Equipment - Labor		, .pp.	, tpp.					
	Trimout - Materials								
	Dine Velves Fittings Leber								
	Pipe, Valves, Fittings - Labor								
	Pipe, Valves, Fittings - Matis								
	MISC Matis								
	Insulation - Matls								
	Insulation - Labor								
	Sanitary Above Slab-Labor								
	Sanitary Above Slab-Matls								
	Storm Above Slab - Labor								
	Storm Above Slab - Matls								
	Gas - Labor								
	Gas - Matis								
	Fixtures - Labor								
	Fixtures - Matts								
	Parmite								
	Coordination Drawings								
1	Coordination Drawings								
	Submittais/Close-Out Documents	1							
	Supervision Clean-up								
	Div. 23 Mechanical - Total								
	Div. 26 - Electrical								
	Mobilization+B220								
	Shop Drawings								
	As-Builts/Close-Out/								
	Conduit - Labor								
	Conduit - Mati								
	Wire - Labor								
	Wire - Matls								
	Feeder Wire - Labor								
	Feeder Wire - Matls								
	Switches/Recpt.								
	Switchgear - Labor								
	Switchgear - Matls								
	Temporary - Materials								
	Temporary - Labor								
	Gas Generator - Materials								
	Gas Generator - Labor								
	Eixturos Labor								
	Fixtures Matte								
	Communications								
	Communications - Labor								
	Communications - Matls								
	Fire Alarm - Labor								
	Fire Alarm - Matls								
	Security - Labor								
	Security - Matls								
	Low Voltage Ltng Sys-Matls								
	Low Voltage Ltng Svs-Labor								
	Voice System - Materials								
	Voice System - Labor								
1	Video System Materiala								
1	Video System Labor								
1	Video System - Labor								
l	Data System - Materials		l	l	I				

SCHEDULE OF VALUES - SAMPLE

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Item	Description of Work	Scheduled	Work Com	pleted	Stored	Total	%	Balance	Retainage
No.		Value	Previous	This	Materials	Completed		To Finish	
			App	App					
	Data System Labor		, .pp.	, ibb.					
	Dala System - Labor								
	Master Clock - Materials								
	Master Clock - Labor+B277								
	Coordination Drawings								
	Submittala/Class Out Desuments								
	Submittais/Close-Out Documents								
	Supervision Clean-up								
	Div. 26 - Total								
	Dive 31 32 and 33 Earthwork	Extorior Im	I	I Ite and II	l tilitios				
	Cite Cleaning & Crubbing		I	lis and o					
	Site Clearing & Grubbing								
	Building Pad - Materials								
	Building Pad - Labor								
	Paving Subgrade								
	Signage / Striping								
	DIKE RACKS								
	Landscaping - Materials								
	Landscaping - Labor								
	Hvdro Mulch - Materials								
	Hydro Mulch - Labor								
	Irrigation - Materials								
	Irrigation - Labor								
	Earthwork								
	Finish Grading								
	Stabilization - Materials								
	Stabilization - Labor								
	Site Drainage - Materials								
	Site Drainage - Labor								
	Chain Link Fence-Materials								
	Chain Link Fence-Labor								
	Paving - Labor								
	Paving - Materials								
	Sidewalks								
	Submittals/Close-Out Documents								
	Supervision Clean-up								
	Div 21, 22 and 22, Total								
_	Div. 51, 52 and 55 - Total								
	General Conditions								
	Mobilization								
	Temp, Facilities								
	Final Cleaning								
	Record Documents/Close-out/								
	O&M Manuals								
	Supervision								
	Permits								
	Bonds								
	insurance								
	Allowances								
	Alternates (list)								
	Change Orders								
	A. FK#								
	B. PR#								
	C. PR#								
I									

END OF SECTION

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

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 provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Coordination drawings.
 - 3. Pre-install meetings.
- B. Each trade shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific trade.
- C. The Contractor shall make a reasonable attempt to interpret the Contract Documents before asking the Architect for assistance in interpretation. Requests for Information (RFIs) will not be allowed from the Contractor. The Contractor shall arrange the necessary meeting in the field with appropriate Architect's field representative(s) to obtain clarification as needed on items that may need interpretation.

1.3 SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel Names: Within 15 days of starting 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; list addresses and telephone numbers, including home, office, and cellular telephone numbers and email addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
 - 1. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.4 COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations to ensure efficient and orderly installation of each part of the Work. Coordinate operations included in different Sections which depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain best results where installation of one part of the 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. Prepare memoranda for distribution to each party involved, including the Owner, outlining special procedures required for coordination. Include items as required notices, reports, and list of attendees at meetings.

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- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. 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. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Preinstallation conferences.
 - 7. Project closeout activities.
 - 8. Startup and adjustment of systems.
 - 9. Coordinating inspections and other jurisdictional requirements.
 - 10. Coordinate OFCI equipment.
 - 11. Action items and issue logs.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
 - 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to the Specifications Sections for disposition of salvaged materials that are designated as Owner's property.

1.5 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
 - 1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
 - b. Coordinate the addition of trade specific information to the coordination drawings by multiple Contractors in sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
 - c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
 - e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
 - f. Indicate required installation sequences.
 - g. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- B. Coordination Drawing Organization: Organize coordination drawings:
 - 1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan

Project Management and Coordination 01 31 00 - 2 drawings with section drawings where required to adequately represent the Work.

- 2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings. Indicate areas of conflict between light fixtures, ductwork, piping, 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.
 - c. Fire-rated enclosures around ductwork.
- 7. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit 1-1/4 inches (32 mm) in diameter and larger.
 - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire alarm 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. Floor boxes.
- 8. Fire Protection System: Show the following:
 - a. Locations of standpipes, mains piping, branch lines, pipe drops, sprinkler heads, and inspector test locations.
- 9. IDF/MDF Rooms: Communications and low voltage (security, data, phone, etc.) audio.
- 10. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make changes as directed and resubmit.
- 11. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 01 33 00 Submittal Procedures.
- 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 format same as file preparation format.
 - 3. Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.
 - a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
 - b. Digital Data Software Program: Drawings are available in Revit.
 - c. Contractor shall execute a data licensing agreement in the form of AIA Document AIA C106.

1.6 **PROJECT MEETINGS**

- A. Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
 - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 - 2. Agenda: Architect to prepare the meeting agenda and distribute the agenda to all invited attendees.
 - 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
 - 4. Action Items: An element of work, design, research, or other task to be completed before a specific date or time, such as before a subsequent meeting of involved parties.
 - 5. Issue logs: Documentation element of software project management and contains a list of ongoing and closed issues of the project.
- B. Kick-off & Preconstruction Conference: Architect will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect.
 - 1. Conduct the conference to review responsibilities and personnel assignments.
 - 2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 3. Agenda: Discuss items of significance that affect progress.
 - 4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
 - 5. Action Items: An element of work, design, research, or other task to be completed before a specific date or time, such as before a subsequent meeting of involved parties.
- C. Preinstallation Conferences: Conduct a preinstallation trade conference at site before each construction activity that requires coordination with other construction trades.
 - 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 Architect of scheduled meeting dates.
 - 2. Agenda: Contractor to review progress of other construction activities and preparations for the particular activity under consideration.
 - 3. Contractor to record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 - 4. Reporting: Contractor to 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 whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
 - 6. Action Items: An element of work, design, research, or other task to be completed before a specific date or time, such as before a subsequent meeting of involved parties.
- D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 90 days prior to the scheduled date of Substantial Completion.
 - 1. Conduct the conference to review requirements and responsibilities related to Substantial Completion.
 - 2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project

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and authorized to conclude matters relating to the Work.

- 3. Agenda: Discuss items of significance that could affect or delay Project closeout.
- 4. Minutes: Entity conducting meeting will record and distribute meeting minutes.
- 5. Action Items: An element of work, design, research, or other task to be completed before a specific date or time, such as before a subsequent meeting of involved parties.
- E. Progress Meetings: Conduct progress meetings at weekly intervals.
 - 1. Coordinate dates of meetings with preparation of payment requests.
 - 2. Attendees: In addition to representatives of Owner and Architect, 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 meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
 - b. Six (6) week look-ahead schedules.
 - 5. Action Items: An <u>element</u> of <u>work</u>, <u>design</u>, research, or other <u>task</u> to be completed before a specific date or time, such as before a subsequent meeting of involved parties.
- F. Coordination Meetings: Conduct coordination meetings at weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
 - 1. Attendees: In addition to representatives of Owner and Architect, 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 shall be familiar with Project and authorized to conclude matters relating to the 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: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the 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.

- 3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.
- 4. Action Items: An <u>element</u> of <u>work</u>, <u>design</u>, research, or other <u>task</u> to be completed before a specific date or time, such as before a subsequent meeting of involved parties.

PART 2 PRODUCTS NOT USED PART 3 EXECUTION NOT USED

END OF SECTION 01 31 00

SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

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 documenting the progress of construction during performance of the Work, including the following:
 - 1. Startup schedule.
 - 2. Contractor's construction schedule.
 - 3. Construction schedule updating reports.
 - 4. Daily construction reports.
 - 5. Material location reports.
 - 6. Site condition reports.
 - 7. Special reports.

1.3 DEFINITIONS

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Activity.
 - a. Critical Activity.
 - b. Predecessor Activity.
 - c. Successor Activity.
 - 2. Cost Loading.
 - 3. Critical Path.
 - 4. Critical Path Method (CPM).
 - 5. Float.
 - 6. Look-Ahead Schedule.
 - 7. Milestones.
 - 8. Recovery Schedule.
 - 9. Resource Loading.

1.4 SUBMITTALS

- A. Submittal Format: Submit required submittals in the following format:
 - 1. Working electronic copy of schedule file, where indicated.
 - 2. PDF electronic file.
- B. Startup Diagram: Of size necessary to display entire network for entire construction period; show logic relationship ties for all activities
- C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
 - 1. Submit a working electronic copy of schedule, labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.
- D. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
 - 1. Activity Report: List of activities sorted by activity number and then early start date, or actual start date if known.
 - 2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.

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- 3. Total Float Report: List of all activities sorted in ascending order of total float.
- 4. Earnings Report: Compilation of Contractor's total earnings from commencement of the Work until most recent Application for Payment.
- E. Construction Schedule Updating Reports: Submit with Applications for Payment.
- F. Daily Construction Reports: Submit at monthly intervals.
- G. Material Location Reports: Submit at monthly intervals.
- H. Site Condition Reports: Submit at time of discovery of differing conditions.
- I. Special Reports: Submit at time of unusual event.

1.5 QUALITY ASSURANCE

- A. Pre-Scheduling Conference: Conduct conference at site. Review methods and procedures related to the preliminary construction schedule and Contractor's construction schedule, including, but not limited to, the following:
 - 1. Review software limitations and content and format for reports.
 - 2. Verify availability of qualified personnel needed to develop and update schedule.
 - 3. Discuss constraints, including phasing, Work stages, area separations, interim milestones, and partial Owner occupancy.
 - 4. Review delivery dates for Owner furnished products.
 - 5. Review schedule for Work of Owner's separate contracts, if any.
 - 6. Review submittal requirements and procedures.
 - 7. Review time required for review of submittals and re-submittals.
 - 8. Review requirements for tests and inspections by independent testing and inspecting agencies.
 - 9. Review time required for Project closeout and Owner startup procedures.
 - 10. Review and finalize list of construction activities to be included in schedule.
 - 11. Review procedures for updating schedule.

1.6 COORDINATION

- A. Coordinate Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from entities involved.
 - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Time is of the essence to the Owner. Commence Work immediately upon issuance of the Notice to Proceed. There is a critical need for the Work to be substantially complete within the time frame identified in the Agreement.
- B. Time Frame: Extend schedule from date established for commencement of the Work to date of Substantial Completion and date of final completion.
 - 1. Contract completion date shall not be changed by submission of schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each separate area or story as a separate numbered activity for each main element of the Work. Comply with the following:
 - 1. Activity Duration: Define activities in terms of number of days anticipated.
 - 2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals,

purchasing, fabrication, and delivery.

- 3. Submittal Review Time: Include review and re-submittal times indicated in Section 01 33 00 Submittal Procedures in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
- 4. Startup and Testing Time: Include number of days anticipated for startup and testing.
- 5. Substantial Completion: Indicate completion of all conditions as in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
- 6. Punch List and Final Completion: Include a maximum of 30 days for completion of punch list items and final completion.
- 7. Inspections required by Authorities Having Jurisdiction (AHJ).
- D. Constraints: Include constraints and Work restrictions indicated in the Contract Documents and show how the sequence of the Work is affected.
 - 1. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use of premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.
 - i. Rain days are to be included in project schedule; refer to Section 01 10 00 -Summary for additional weather information.
 - 2. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Submittals.
 - b. Mockups.
 - c. Fabrication.
 - d. Installation.
 - e. Tests and inspections.
 - f. Adjusting.
 - g. Curing.
- E. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.
- F. Six (6) week, lookahead schedule: Prepare schedule indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
 - 1. Unresolved issues.
 - 2. Unanswered Requests for Information.
 - 3. Rejected or unreturned submittals.
 - 4. Notations on returned submittals.
 - 5. Pending modifications affecting the Work and Contract Time.
 - 6. Inspections by Authorities Having Jurisdiction (AHJ).
 - 7. Trade pre-installation conference.
- G. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.

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- H. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
- I. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time impact analysis to demonstrate the effect of the proposed change on the overall project schedule.
- J. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
 - 1. Identification of activities that have changed.
 - 2. Changes in early and late start dates.
 - 3. Changes in early and late finish dates.
 - 4. Changes in activity durations in workdays.
 - 5. Changes in the critical path.
 - 6. Changes in total float or slack time.
 - 7. Changes in the Contract Time.

2.2 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording information concerning events at the site and submit each month to Architect:
 - 1. List of subcontractors at Project site.
 - 2. List of separate contractors at Project site.
 - 3. Approximate count of personnel at Project site.
 - 4. Rental equipment at Project site.
 - 5. Material deliveries.
 - 6. High and low temperatures and general weather conditions, including presence of rain or snow.
 - 7. Accidents.
 - 8. Meetings and significant decisions.
 - 9. Unusual events (see special reports).
 - 10. Stoppages, delays, shortages, and losses.
 - 11. Meter readings and similar recordings.
 - 12. Emergency procedures.
 - 13. Orders and requests of Authorities Having Jurisdiction (AHJ).
 - 14. Change Orders received and implemented.
 - 15. Construction Change Directives received and implemented.
 - 16. Services connected and disconnected.
 - 17. Equipment or system tests and startups.
 - 18. Partial completions and occupancies.
 - 19. Substantial Completions authorized.
- B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:
 - 1. Material stored prior to previous report and remaining in storage.
 - 2. Material stored prior to previous report and since removed from storage and installed.
 - 3. Material stored following previous report and remaining in storage.
- C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report and contact Architect Field Representative. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents to Architect Field Representative.

- D. Special Reports: Submit special reports directly to OwnerOwner within 24 hours of an occurrence. Distribute copies of report to parties affected by the occurrence.
 - 1. Reporting Unusual Events: When an event of an unusual and significant nature occurs at site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, and response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner and Architect in advance when these events are known or predictable.

PART 3 EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule with a pencil copy of pay application.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate final completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and interested parties identified by Contractor with a need to know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 32 00

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SECTION 01 32 33 - PHOTOGRAPHIC DOCUMENTATION

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 the following:
 - 1. Preconstruction photographs.
 - 2. Periodic construction photographs.
 - 3. Final completion construction photographs.

1.3 SUBMITTALS

- A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph or video recording. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.
- B. Digital Photographs: Submit image files within three days of taking photographs.
 - 1. Digital Camera: Minimum sensor resolution of 8 megapixels.
 - 2. Format: Minimum 3200 by 2400 pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of photograph, accompanied by key plan file.
 - 3. Identification: Provide the following information with each image description in file metadata tag:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Date photograph was taken.
 - f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
 - g. Unique sequential identifier keyed to accompanying key plan.
- C. Construction Photographs: Submit two prints of each photographic view within seven days of taking photographs.
 - 1. Format: 8 by 10 inches (203 by 254 mm) smooth surface matte prints on single weight, commercial grade photographic paper; mounted on card stock to allow a 1 inch (25 mm) wide margin punched for standard three-ring binder.
 - 2. Identification: On back of each print, provide an applied label or rubber-stamped impression with the following information:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Date photograph was taken if not date stamped by camera.
 - f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
 - g. Unique sequential identifier keyed to accompanying key plan.
- D. Construction Photographs: Each photographic view within seven days of taking photographs.
 - 1. Format: Electronic (PDF, Word, or Excel)
 - 2. Identification: Provide the following information:
 - a. Name of Project.

- b. Name and contact information for photographer.
- c. Name of Architect.
- d. Name of Contractor.
- e. Date photograph was taken if not date stamped by camera.
- f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
- g. Unique sequential identifier keyed to accompanying key plan.

1.4 QUALITY ASSURANCE

A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.

1.5 USAGE RIGHTS

A. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.

PART 2 PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of 8 megapixels, and at an image resolution of not less than 3200 by 2400 pixels.

PART 3 EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

- A. Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
 - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image editing software.
 - 1. Date and Time: Include date and time in file name for each image.
 - 2. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to the Architect.
- C. Pre-Construction Photographs: Before commencement of the Work, take photographs of site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by the Architect.
 - 1. Flag construction limits before taking construction photographs.
 - 2. Take minimum of 20 photographs to show existing conditions adjacent to property before starting the Work.
 - 3. Take minimum of 20 photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
 - 4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- D. Periodic Construction Photographs: Take minimum of 20 photographs monthly, coinciding with cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- E. Architect Directed Construction Photographs: From time to time, the Architect will instruct photographer about number and frequency of photographs and general directions on vantage points. Select actual vantage points and take photographs to show the status of construction and progress since last photographs were taken.

- F. Time Lapse Sequence Construction Photographs: Take minimum of 20 photographs as indicated, to show status of construction and progress since last photographs were taken.
 - 1. Frequency: Take photographs monthly, coinciding with the cutoff date associated with each Application for Payment.
 - 2. Vantage Points: Following suggestions by the Architect and the Contractor, photographer to select vantage points. During each of the following construction phases, take not less than two of the required shots from same vantage point each time to create a time lapse sequence.
 - a. Commencement of the Work, through completion of subgrade construction.
 - b. Above grade structural framing.
 - c. Exterior building enclosure.
 - d. Interior Work, through date of Substantial Completion.
- G. Final Completion Construction Photographs: Take minimum of 20 color photographs after date of Substantial Completion for submission as project record documents. Architect will inform photographer of desired vantage points.
 - 1. Do not include date stamp.
- H. Additional Photographs: The Architect may request photographs in addition to periodic photographs specified. Additional photographs will be paid for by Change Order and are not included in the Contract Sum.
 - 1. Three days' notice will be given, where feasible.
 - 2. In emergency situations, take additional photographs within 24 hours of request.
 - 3. Circumstances that could require additional photographs include, but are not limited to, the following:
 - a. Special events planned at Project site.
 - b. Immediate follow up when on site events result in construction damage or losses.
 - c. Take photographs at fabrication locations away from site.
 - d. Substantial Completion of a major phase or component of the Work.
 - e. Extra record photographs at time of final acceptance.
 - f. Owner's request for special publicity photographs.

END OF SECTION 01 32 33

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SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes: Requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.3 DEFINITIONS

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Submittals.
 - 2. File Transfer Protocol (FTP).
 - 3. Portable Document Format (PDF).

1.4 SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by date required by construction schedule. 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 Architect and additional time for handling and reviewing submittals required by those corrections.
 - 1. Coordinate submittal schedule with list of subcontracts, schedule of values, and the Contractor's construction schedule.
 - 2. Initial Submittal: Submit concurrently with construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 - 3. Final Submittal: Submit concurrently with the first complete submittal of the Contractor's construction schedule. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. The Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by the Architect for the Contractor's use in preparing submittals.
 - 1. Upon request, the Architect will furnish the Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings.
 - a. The Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
 - b. Digital Drawing Software Program: Contract Drawings are available in Revit.
 - c. The Contractor shall execute a data licensing agreement in the form of AIA Document AIA C106, Digital Data Licensing Agreement.
 - d. The following digital data files will by furnished for each appropriate discipline:
 - 1) Floor plans.
 - 2) Reflected ceiling plans.
- 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 submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.

- 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
- 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. The 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. Time for review shall commence on the Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 1. Initial Review: Allow ten (10) days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required the Architect will advise the Contractor when a submittal being processed must be delayed for coordination.
 - 2. Intermediate Review: If intermediate submittal is necessary, process in same manner as initial submittal.
 - 3. Resubmittal Review: Allow 10 days for review of each resubmittal.
 - 4. Sequential Review: Where sequential review of submittals by the Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
 - 5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to the Architect and to the Architect's consultants, allow 10) days for review of each submittal. Submittal will be returned to the Architect before being returned to the Contractor.
- D. Electronic Submittals: Identify and incorporate information in each electronic submittal file:
 - 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:
 - a. File name shall use Project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., SLOHSM-06 10 00.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., SLOHSM-06 10 00.01.A).
 - 3. Provide means for insertion to permanently record the Contractor's review and approval markings and action taken by the Architect.
 - 4. Transmittal Form for Electronic Submittals: Use software generated form from electronic project management software acceptable to the Owner, containing the following information:
 - a. Project name.
 - b. Name and address of the Architect.
 - c. Name of the Construction Manager.
 - d. Name of the Contractor.
 - e. Name of firm or entity that prepared submittal.
 - f. Names of subcontractor, manufacturer, and supplier.
 - g. Category and type of submittal.
 - h. Submittal purpose and description.
 - i. Specification Section number and title.
 - j. Specification paragraph number or drawing designation and generic name for each of multiple items.
 - k. Drawing number and detail references, as appropriate.
 - I. Location(s) where product is to be installed, as appropriate.
 - m. Related physical samples submitted directly.
 - n. Indication of full or partial submittal.

- o. Transmittal number, numbered consecutively.
- p. Submittal and transmittal distribution record.
- q. Other necessary identification.
- r. Remarks.
- 5. Metadata: Include the following information as keywords in the electronic submittal file metadata:
 - a. Project name.
 - b. Number and title of appropriate Specification Section.
 - c. Manufacturer name.
 - d. Product name.
- E. Options: Identify options requiring selection by the Architect.
- F. Deviations and Additional Information: On an attached separate sheet, prepared on the Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by the Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- G. Resubmittals: Make resubmittals in same form and number of copies as 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's action stamp.
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from the Architect's action stamp.

PART 2 PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 - 1. Submit electronic submittals via email as PDF electronic files.
 - a. The Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
 - 2. Certificates and Certifications Submittals: Provide statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
 - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
- B. 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 are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.

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- c. Standard color charts.
- d. Statement of compliance with specified referenced standards.
- e. Testing by recognized testing agency.
- f. Application of testing agency labels and seals.
- g. Notation of coordination requirements.
- h. Availability and delivery time information.
- 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
- 5. Submit Product Data before or concurrent with Samples.
- 6. Submit Product Data in PDF electronic file.
- C. Shop Drawings: Prepare Project specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 - 1. Preparation: Fully illustrate requirements in the 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.
 - g. Seal and signature of professional engineer if specified.
 - 2. Sheet Size: Except for templates, patterns, and similar full size drawings, submit Shop Drawings on sheet size indicated in specification section.
 - 3. Submit Shop Drawings in PDF electronic file.
 - 4. BIM File Incorporation: Develop and incorporate Shop Drawing files into Building Information Model established for Project.
 - a. Prepare Shop Drawings in same digital data software program, version, and operating system as the original Drawings.
 - b. Refer to Section 01 31 00 Project Management and Coordination for requirements for coordination drawings.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
 - 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 - 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 - e. Specification paragraph number and generic name of each item.
 - 3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
 - 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 final acceptance of construction associated with each set.

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- a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
- b. Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor.
- 5. Samples: Submit full size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Key Items Review Time: Submit samples to the Architect at least 30 days prior to date the Contractor needs reviewed submittals returned. The Contractor shall be prepared to submit color samples on any key items in Division 09 finishes within 30 days of the award of Contract. Once samples of all key items are received, the Architect will finalize color selections.
 - b. Number of Samples: Submit three sets of Samples. The Architect will retain two Sample sets; remainder will be returned.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. 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. Include unique identifier for each product indicated in the Contract Documents or assigned by the Contractor if none is indicated.
 - 2. Manufacturer and product name, and model number if applicable.
 - 3. Number and name of room or space.
 - 4. Location within room or space.
 - 5. Submit product schedule in PDF electronic file.
- F. Coordination Drawing Submittals: Comply with requirements specified in Section 01 31 00 Project Management and Coordination.
- G. Contractor's Construction Schedule: Comply with requirements specified in Section 01 32 00 Construction Progress Documentation.
- H. Application for Payment and Schedule of Values: Comply with requirements specified in Section 01 29 00 Payment Procedures.
- I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 01 40 00 Quality Requirements.
- J. Closeout Submittals required for Substantial Completion: Comply with requirements specified in Section 01 77 00 Closeout Procedures.
- K. Maintenance Data: Comply with requirements specified in Section 01 78 23 Operation and Maintenance Data.
- L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

- M. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- N. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- O. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- P. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- Q. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- R. 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 the Contract Documents.
- S. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- T. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- U. 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 the Contract Documents.
- V. 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.
- W. 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 the Contract Documents.
- X. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of the Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to the Architect.
- B. Delegated Design Services Certification: In addition to Shop Drawings, Product Data, and required submittals, submit digitally signed PDF electronic file and three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to the Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.
- C. BIM File Incorporation: Incorporate delegated design drawing and data files into Building Information Model established for Project.
 - 1. Prepare delegated design drawings in the same digital data software program, version, and operating system as the original Drawings.

PART 3 EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of the Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. Submittals: The Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. The Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
 - 1. Reviewed: Indicates the Architect has reviewed the submittal and takes no exceptions as submitted.
 - 2. Furnish as Corrected: Submittal is approved, provided modifications noted are properly incorporated. Resubmission is not usually necessary.
 - 3. Revise and Resubmit: Modifications are required prior to approval. Work cannot proceed until the submittal is revised and resubmitted for further review.
 - 4. Rejected: Work covered by the submittal is not complete or does not conform the Contract Documents and cannot proceed. A new submittal needs to be made according to the notations and resubmitted for approval prior to fabrication or construction.
- B. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from the Architect.
- C. Incomplete submittals are not permitted, will be considered non-responsive, and will be returned for resubmittal without review.
- D. Submittals not required by the Contract Documents will be returned by the Architect without action.

END OF SECTION 01 33 00

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SECTION 01 35 16 - ALTERATION PROJECT PROCEDURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes: Special procedures for alteration Work.

1.3 **DEFINITIONS**

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Alteration Work.
 - 2. Consolidate.
 - 3. Design Reference Sample.
 - 4. Dismantle.
 - 5. Match.
 - 6. Refinish.
 - 7. Repair.
 - 8. Replace.
 - 9. Replicate.
 - 10. Reproduce.
 - 11. Retain.
 - 12. Strip.

1.4 **REFERENCE STANDARDS**

- A. 40 CFR 745 Lead-Based Paint Poisoning Prevention in Certain Residential Structures; current edition.
- B. ANSI A10.6 Safety & Health Program Requirements for Demolition Operations American National Standard for Construction and Demolition Operations; 6th Edition, 2016.
- C. ICC (IBC) International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- D. ICC (IEBC) International Existing Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- E. NFPA 51B Standard for Fire Prevention During Welding, Cutting, and Other Hot Work; 2020.
- F. NFPA 241 Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).
- G. Texas Accessibility Standards (TAS) 2012 Texas Accessibility Standards (TAS); 2012.

1.5 COORDINATION

- A. Alteration Work Subschedule: A construction schedule coordinating sequencing and scheduling of alteration Work for entire Project, including each activity to be performed, and based on the Contractor's Construction Schedule. Secure time commitments for performing critical construction activities from separate entities responsible for alteration Work.
 - 1. Schedule construction operations in sequence required to obtain best Work results.
 - 2. Coordinate sequence of alteration Work activities to accommodate the following:
 - a. The Owner's continuing occupancy of portions of existing building.
 - b. The Owner's partial occupancy of completed Work.
 - c. Other known Work in progress.
 - d. Tests and inspections.
 - 3. Detail sequence of alteration Work, with start and end dates.

- 4. Utility Services: Indicate how long utility services will be interrupted. Coordinate shutoff, capping, and continuation of utility services.
- 5. Use of elevator and stairs.
- 6. Equipment Data: List gross loaded weight, axle-load distribution, and wheel base dimension data for mobile and heavy equipment proposed for use in existing structure. Do not use such equipment without certification from the Contractor's professional engineer that the structure can support the imposed loadings without damage.
- B. Pedestrian and Vehicular Circulation: Coordinate alteration Work with circulation patterns within Project building(s) and site. Some Work is near circulation patterns and adjacent to restricted areas. Circulation patterns cannot be closed off entirely and in places can be only temporarily redirected around small areas of Work. Access to restricted areas may not be obstructed. Plan and execute the Work accordingly.

1.6 PROJECT MEETINGS FOR ALTERATION WORK

- A. Preliminary Conference for Alteration Work: Before commencing alteration Work, conduct conference at site.
- B. Coordination Meetings: Conduct coordination meetings specifically for alteration Work at regular intervals. Coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
 - 1. Review items of significance that affect progress of alteration Work.
 - a. Interface requirements of alteration work with other Project Work.
 - b. Status of submittals for alteration Work.
 - c. Access to alteration work locations.
 - d. Effectiveness of fire prevention plan.
 - e. Quality and work standards of alteration Work.
 - f. Change Orders for alteration Work.
 - 2. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.7 MATERIALS OWNERSHIP

- A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to the Owner that may be encountered or uncovered during the Work, regardless of whether they were previously documented, remain Owner's property.
 - 1. Carefully dismantle and salvage each item or object in a manner to prevent damage and protect it from damage, then promptly deliver it to the Owner where directed.
- B. Alteration Work Subschedule: Submit alteration Work subschedule within seven days of date established for commencement of alteration Work.
- C. Preconstruction Documentation: Show preexisting conditions of adjoining construction and site improvements that are to remain, including finish surfaces, that might be misconstrued as damage caused by the Contractor's alteration Work operations.
- D. Alteration Work Program: Submit 30 days before Work begins.
- E. Fire Prevention Plan: Submit 30 days before Work begins.

1.8 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Building Code: Comply with ICC (IBC) and ICC (IEBC) for alteration Work.
 - 2. Fire Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire control devices during each phase or process. Coordinate plan with Owner's fire protection equipment and requirements. Include fire watch personnel's training, duties, and authority to enforce fire safety.

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- 3. Safety and Health Standard: Comply with ANSI A10.6.
- 4. Title X Requirement: Each firm conducting activities that disturb painted surfaces shall be a Lead-Safe Certified Firm according to 40 CFR 745, Subpart E, and use only workers that are trained in lead safe Work practices.
- 5. Accessibility Requirements: Comply with applicable requirements.
 - a. Texas Accessibility Standards (TAS).
- B. Specialist Qualifications: An experienced firm having minimum 10 years documented experience that is regularly engaged in specialty Work similar in nature, materials, design, and extent to alteration Work specified.
 - 1. Field Supervisor Qualifications: Full time supervisors experienced in specialty Work similar in nature, material, design, and extent to that indicated for this Project. Supervisors shall be on site when specialty Work begins and during its progress. Supervisors shall not be changed during Project except for causes beyond the control of the specialist firm.
 - a. Construct new mockups of required Work whenever a supervisor is replaced.
- C. Alteration Work Program: Prepare a written plan for alteration Work for whole Project, including each phase or process and protection of surrounding materials during operations. Show compliance with indicated methods and procedures specified in this and other Sections. Coordinate this whole Project alteration Work program with specific requirements of programs required in other alteration Work Sections.
 - 1. Dust and Noise Control: Include locations of proposed temporary dust and noise control partitions and means of egress from occupied areas coordinated with continuing on site operations and other known Work in progress.
 - 2. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.

1.9 STORAGE AND HANDLING OF SALVAGED MATERIALS

- A. Salvaged Materials:
 - 1. Clean loose dirt and debris from salvaged items unless more extensive cleaning is indicated.
 - 2. Pack or crate items after cleaning; cushion against damage during handling. Label contents of containers.
 - 3. Store items in a secure area until delivery to the Owner.
 - 4. Transport items to the Owner's storage area designated by the Owner.
 - 5. Protect items from damage during transport and storage.
- B. Salvaged Materials for Reinstallation:
 - 1. Repair and clean items for reuse as indicated.
 - 2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.
 - 3. Protect items from damage during transport and storage.
 - 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make items functional for use indicated.
- C. Existing Materials to Remain: Protect construction indicated to remain against damage and soiling from construction Work. Where permitted by the Architect, items may be dismantled and taken to a suitable, protected storage location during construction Work and reinstalled in their original locations after alteration and other construction work in the vicinity is complete.
- D. Storage: Catalog and store items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.
 - 1. Identify each item for reinstallation with a nonpermanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.

- 2. Secure stored materials to protect from theft.
- 3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 5 degrees F (3 degrees C) or more above the dew point.
- E. Storage Space:
 - 1. Owner will arrange for limited on site location(s) for free storage of salvaged material. Storage space does include security and climate control for stored material.
 - 2. Arrange for off site locations for storage, protection, and insurance coverage of salvaged material that cannot be stored and protected on site.

1.10 FIELD CONDITIONS

- A. Survey of Existing Conditions: Record existing conditions that affect the Work by use of measured drawings, preconstruction photographs, and preconstruction videos.
 - 1. Comply with requirements specified in Section 01 32 00 Construction Progress Documentation.
- B. Discrepancies: Notify the Architect of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling Work.
- C. Owner's Removals: Before beginning alteration Work, verify in correspondence with the Owner that the following items have been removed:
- D. Size Limitations in Existing Spaces: Materials, products, and equipment used for performing the work and for transporting debris, materials, and products shall be of sizes that clear surfaces within existing spaces, areas, rooms, and openings, including temporary protection, by 12 inches (300 mm) or more.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 PROTECTION

- A. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from alteration Work.
 - 1. Use proven protection methods, appropriate to each area and surface being protected.
 - 2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where alteration Work is being performed.
 - 3. Erect temporary barriers to form and maintain fire egress routes.
 - 4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during alteration Work.
 - 5. Contain dust and debris generated by alteration Work, and prevent it from reaching the public or adjacent surfaces.
 - 6. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
 - 7. Protect floors and other surfaces along hauling routes from damage, wear, and staining.
 - 8. Provide supplemental sound control treatment to isolate demolition Work from other areas of the building.
- B. Temporary Protection of Materials to Remain:
 - 1. Protect existing materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
 - 2. Do not attach temporary protection to existing surfaces except as indicated as part of the alteration work program.
- C. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.
- D. Utility and Communications Services:

- 1. Notify the Owner, the Architect, Authorities Having Jurisdiction (AHJ), and entities owning or controlling wires, conduits, pipes, and other services affected by alteration Work before commencing operations.
- 2. Disconnect and cap pipes and services as required by Authorities Having Jurisdiction (AHJ), as required for alteration Work.
- 3. Maintain existing services unless otherwise indicated; keep in service, and protect against damage during operations. Provide temporary services during interruptions to existing utilities.
- E. Existing Drains: Prior to the start of Work in an area, test drainage system to ensure that it is functioning properly. Notify the Architect immediately of inadequate drainage or blockage. Do not begin Work in an area until the drainage system is functioning properly.
 - 1. Prevent solids such as adhesive or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from alteration Work.
 - 2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.
- F. Existing Roofing: Prior to the start of Work in an area, install roofing protection.

3.2 PROTECTION FROM FIRE

- A. Follow fire prevention plan and the following:
 - 1. Comply with NFPA 241 requirements unless otherwise indicated.
 - 2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate Work.
 - a. If combustible material cannot be removed, provide fire blankets to cover materials.
- B. Heat Generating Equipment and Combustible Materials: Comply with procedures while performing Work with heat generating equipment or combustible materials, including welding, torch cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:
 - 1. Obtain the Owner's approval for operations involving use of open flame or welding or other high heat equipment. Use of open plame equipment is not permitted. Notify the Owner at least 72 hours before each occurrence, indicating location of such Work.
 - 2. As far as practicable, restrict heat generating equipment to shop areas or outside the building.
 - 3. Do not perform Work with heat generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
 - 4. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.
 - 5. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
 - 6. Fire Watch: Before Working with heat generating equipment or combustible materials, station personnel to serve as a fire watch at each location where Work is performed. Firewatch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:
 - a. Train each fire watch in the proper operation of fire control equipment and alarms.
 - b. Prohibit firewatch personnel from other Work that would be a distraction from firewatch duties.
 - c. Cease Work with heat generating equipment whenever fire watch personnel are not present.
 - d. Have fire watch personnel perform final fire safety inspection each day beginning no sooner than 30 minutes after conclusion of Work in each area to detect hidden or smoldering fires and to ensure that proper fire prevention is maintained.

- e. Maintain fire watch personnel in each area site until 60 minutes after conclusion of daily Work.
- C. Fire Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each Work area. Ensure that nearby personnel and the fire-watch personnel are trained in fire-extinguisher and blanket use.
- D. Sprinklers: Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to sprinklers, shield them temporarily with guards.
 - 1. Remove temporary guards at the end of Work shifts, whenever operations are paused, and when nearby Work is complete.

3.3 PROTECTION DURING APPLICATION OF CHEMICALS

- A. Protect motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm or spillage resulting from applications of chemicals and adhesives.
- B. Cover adjacent surfaces with protective materials that are proven to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in alteration Work program. Use covering materials and masking agents that are waterproof and UV resistant and that will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to manufacturer's written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials.
- C. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.
- D. Neutralize alkaline and acid wastes and legally dispose of off the Owner's property.
- E. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

3.4 ALTERATION WORK

- A. Have specialty Work performed only by qualified specialists.
- B. Ensure that supervisory personnel are present when Work begins and during its progress.
- C. Record existing Work before each procedure (preconstruction), and record progress during the Work. Use digital preconstruction documentation photographs or video recordings. Comply with requirements in Section 01 32 33 Photographic Documentation.
- D. Perform surveys of site as the Work progresses to detect hazards resulting from alterations.
- E. Notify the Architect of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.
 - 1. Do not proceed with the Work in question until directed by Architect.

END OF SECTION 01 35 16

SECTION 01 35 43.13 - ENVIRONMENTAL PROCEDURES FOR HAZARDOUS MATERIALS

PART 1 GENERAL

1.1 NOTICE OF HAZARDOUS WASTE OR MATERIALS

- A. The Contractor shall give notice in writing to the Owner and the Architect promptly, before any of the following conditions are disturbed, and in no event later than 24 hours after first observance, of any:
 - 1. Material that the Contractor believes may be a material that is hazardous waste or hazardous material, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law, or
 - 2. Other material that may present a substantial danger to persons or property exposed thereto in connection with Work at the site.
- B. The Contractor's written notice shall indicate whether the hazardous waste or material was shown or indicated in the Contract Documents to be within the scope of Work, and whether the materials were brought to the site by the Contractor, Subcontractors, suppliers, or anyone else for whom the Contractor is responsible. As used in this Section, the term "hazardous materials" shall include, without limitation, asbestos, lead, polychlorinated biphenyl (PCB), petroleum and related hydrocarbons, and radioactive material.
- C. In response to the Contractor's written notice, the Owner shall investigate the identified conditions.
- D. If the Owner determines that conditions do not involve hazardous materials or that no change in terms of Contract is justified, the Owner shall so notify Contractor in writing, stating reasons. If the Owner and the Contractor cannot agree on whether conditions justify an adjustment in Contract Price or Contract Time, or on the extent of any adjustment, Contractor shall proceed with the Work as directed by the Owner.
- E. If after receipt of notice from the Owner, the Contractor does not agree to resume Work based on a reasonable belief it is unsafe, or does not agree to resume Work under special conditions, then Owner may order such portion of Work that is in connection with such hazardous condition or such affected area to be deleted from the Work, or performed by others, or the Owner may invoke its rights to terminate the Contract in whole or in part. The Owner will determine entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Time as a result of deleting such portion of Work or performing the Work by others.
- F. If the Contractor stops Work in connection with any hazardous condition and in any area affected thereby, the Contractor shall immediately redeploy its workers, equipment, and materials, as necessary, to other portions of the Work to minimize delay and disruption.

1.2 ADDITIONAL WARRANTIES AND REPRESENTATIONS

- A. The Contractor represents and warrants that the Contractor, the Contractor's employees, and the Subcontractors and their employees, shall at all times have the required levels of familiarity with the site and the Work, training, and ability to comply fully with all applicable legal and contractual requirements for safe and expeditious performance of the Work, including whatever training is or may be required regarding the activities to be performed (including, but not limited to, all training required to address adequately the actual or potential dangers of Contract performance).
- B. The Contractor represents and warrants that the Contractor, the Contractor's employees, and the Subcontractors and their employees, shall at all times have and maintain in good standing any and all certifications and licenses required by applicable federal, state, and other governmental and quasi-governmental requirements applicable to the Work.
- C. The Contractor represents and warrants that he or she has studied carefully all requirements of the Specifications regarding procedures for demolition, hazardous waste abatement, or safety

Environmental Procedures for Hazardous Materials 01 35 43.13 - 1
practices specified in the Contract, and prior to submitting its bid has either (a) verified to its satisfaction that the specified procedures are adequate and sufficient to achieve the results intended by the Contract Documents, or (b) by way of approved "or equal" request or request for clarification and written Addenda, secured changes to the specified procedures sufficient to achieve the results intended by the Contract Documents. The Contractor accepts the risk that any specified procedure will result in a completed Project in full compliance with the Contract Documents.

1.3 MONITORING AND TESTING

- A. The Owner reserves the right, in its sole discretion, to conduct air monitoring, earth monitoring, Work monitoring, and any other tests (in addition to testing required under the agreement or applicable law), to monitor Contract requirements of safe and statutorily compliant work methods and (where applicable) safe re-entry level air standards under state and federal law upon completion of the job, and compliance of the Work with periodic and final inspection by public and quasi-public entities having jurisdiction.
- B. The Contractor acknowledges that the Owner has the right to perform, or cause to be performed, various activities and tests including, but not limited to, pre-abatement, during abatement, and post-abatement air monitoring, that the Owner shall have no obligation to perform said activities and tests, and that a portion of said activities and tests may take place prior to the completion of the Work by the Contractor. In the event the Owner elects to perform these activities and tests, the Contractor shall afford the Owner ample access to the site and all areas of the Work as may be necessary for the performance of these activities and tests. The Contractor will include the potential impact of these activities or tests by the Owner in the Contract Price and the Scheduled Completion Date.
- C. Notwithstanding the Owner's rights granted by this paragraph, Contractor may retain his or her own industrial hygiene consultant at the Contractor's own expense and may collect samples and may perform tests including, but not limited to, pre-abatement, during abatement, and post-abatement personal air monitoring: The Owner reserves the right to request documentation of all such activities and tests performed by the Contractor relating to the Work and Contractor shall immediately provide that documentation upon request.

1.4 COMPLIANCE WITH LAWS

- A. The Contractor shall perform safe, expeditious, and orderly work in accordance with the best practices and the highest standards in the hazardous waste abatement, removal, and disposal industry, the applicable law, and the Contract Documents including, but not limited to, all responsibilities relating to the preparation and return of waste shipment records, all requirements of the law, delivering of all requisite notices, and obtaining all necessary governmental and quasi-governmental approvals.
 - 1. The Contractor represents that they are familiar with, and shall comply with, all laws applicable to the Work or completed Work including, but not limited to, all federal, state, and local laws, statutes, standards, rules, regulations, and ordinances applicable to the Work relating to:
 - a. The protection of public health and welfare, and environment,
 - b. Storage, handling, or use of asbestos, PCB, lead, petroleum-based products or other hazardous materials,
 - c. The generation, processing, treatment, storage, transport, disposal, destruction, or other management of asbestos, PCB, lead, petroleum, or hazardous waste materials or other waste materials of any kind, and

1.5 DISPOSAL

A. The Contractor has the sole responsibility for determining current waste storage, handling, transportation, and disposal regulations for the job site and for each waste disposal facility. The Contractor must comply fully at its sole cost and expense with these regulations and any applicable law. The Owner may, but is not obligated to, require submittals with this information

Environmental Procedures for Hazardous Materials 01 35 43.13 - 2 for it to review consistent with the Contract Documents.

- B. The Contractor shall develop and implement a system acceptable to the Owner to track hazardous waste from the site to disposal, including appropriate "Hazardous Waste Manifests" on the EPA form, so that Owner may track the volume of waste it put in each landfill and receive from each landfill a certificate of receipt.
- C. The Contractor shall provide the Owner with the name and address of each waste disposal facility prior to any disposal, and the Owner shall have the express right to reject any proposed disposal facility. The Contractor shall not use any disposal facility to which Owner has objected. The Contractor shall document actual disposal or destruction of waste at a designated facility by completing a disposal certificate or certificate of destruction forwarding the original to the Owner.

1.6 PERMITS

- A. Before performing any of the Work, and at such other times as may be required by applicable law, the Contractor shall deliver all requisite notices and obtain the approval of all governmental and quasi-governmental authorities having jurisdiction over the Work. For example, before commencing any work in connection with the Work involving asbestos-containing materials, PCBs, or other hazardous materials subject to regulation, the Contractor agrees to provide the required notice of intent to renovate or demolish to the appropriate state or federal agency having jurisdiction, by certified mail, return receipt requested, or by some other method of transmittal for which a return receipt is obtained, and to send a copy of that notice to the Owner. The Contractor shall not conduct any Work involving asbestos-containing materials or PCBs unless the Contractor has first confirmed that the appropriate agency having jurisdiction is in receipt of the required notification. All permits, licenses, and bonds that are required by governmental or quasi-governmental authorities, and all fees, deposits, tap fees, off-site easements, and asbestos and PCB disposal facilities expenses necessary for the prosecution of the Work, shall be procured and paid for by the Contractor. The Contractor shall give all notices and comply with all applicable laws bearing on the conduct of the Work as drawn and specified. If the Contractor observes or reasonably should have observed that Drawings and Specifications and other Contract Documents are at variance therewith, it shall be responsible for promptly notifying the Owner in writing of such fact. If the Contractor performs any Work contrary to applicable laws, it shall bear all costs arising therefrom.
- B. The Contractor shall submit evidence satisfactory to the Owner that he or she and any disposal facility:
 - 1. Has obtained all required permits, approvals, and the like in a timely manner both prior to commencement of the Work and thereafter as and when required by applicable law, and
 - 2. Is in compliance with all such permits, approvals, and the regulations.
- C. In the case of any permits or notices held in the Owner's name or of necessity to be made in the Owner's name, the Owner shall cooperate with the Contractor in securing the permit or giving the notice, but the Contractor shall prepare for the Owner review and execution upon approval, all necessary applications, notices, and other materials.

1.7 INDEMNIFICATION

A. To the extent permitted by law, the indemnities and limitations of liability expressed throughout the Contract Documents apply with equal force and effect to any claims or liabilities imposed or existing by virtue of the removal, abatement, and disposal of hazardous waste. This includes, but is not limited to, liabilities connected to the selection and use of a waste disposal facility, a waste transporter, personal injury, property damage, loss of use of property, damage to the environment or natural resources, or "disposal" and "release" of materials associated with the Work (as defined in 42 U.S.C. § 960I et seq.).

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1.8 TERMINATION

A. The Owner shall have an absolute right to terminate for default immediately without notice and without an opportunity to cure should the Contractor knowingly or recklessly commit a material breach of the terms of the Contract Documents, or any applicable law, on any matter involving the exposure of persons or property to hazardous waste. If, however, the breach of contract exposing persons or property to hazardous waste is due solely to an ordinary, unintentional, and non-reckless failure to exercise reasonable care, then the procedures for termination for cause shall apply without modification.

PART 2 PRODUCTS NOT USED PART 3 EXECUTION NOT USED

END OF SECTION 01 35 43.13

SECTION 01 35 46 - INDOOR AIR QUALITY PROCEDURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes: Administrative and procedural requirements for indoor air quality management during construction operations.

1.3 DEFINITIONS

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Sustainable Definitions: ASTM E2114 Standard Terminology for Sustainability Relative to the Performance of Buildings.
 - a. Adequate Ventilation.
 - b. Formaldehyde.
 - 1) Urea Formaldehyde.
 - 2) Phenolformaldehyde.
 - c. Hazardous Materials.
 - d. Indoor Air Quality (IAQ).
 - e. Interior Final Finishes.
 - f. MERV.
 - g. Packaged Dry Products.
 - h. Wet Products.

1.4 **REFERENCE STANDARDS**

- A. ANSI A208.1 American National Standard for Particleboard; 2022.
- B. ANSI/SMACNA 008 IAQ Guidelines for Occupied Buildings Under Construction; Current Edition.
- C. ASHRAE Std 52.2 Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size; 2017, with Addendum (2022).
- D. ASHRAE Std 62.1 Ventilation for Acceptable Indoor Air Quality; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- E. ASTM C1601 Standard Test Method for Field Determination of Water Penetration of Masonry Wall Surfaces; Revision 22A, June 1, 2022.
- F. ASTM D4444 Standard Test Method for Laboratory Standardization and Calibration of Hand-Held Moisture Meters; 2018.
- G. ASTM D5957 Standard Guide for Flood Testing Horizontal Waterproofing Installations; 1998 (Reapproved 2021).
- H. ASTM D6329 Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers; 1998 (Reapproved 2023).
- I. ASTM E2114 Standard Terminology for Sustainability; 2023 Edition, April 1, 2023.
- J. ASTM E2128 Standard Guide for Evaluating Water Leakage of Building Walls; 2020.

1.5 PERFORMANCE REQUIREMENTS

A. Develop and utilize an indoor air quality (IAQ) management plan to limit indoor contamination during construction activities until Date of Substantial Completion. Coordinate with environmental quality management plan.

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- 1. Identify potential construction-related outdoor and indoor contaminants.
- 2. Identify possible means of contaminant spread.
- 3. Identify reasonable control options for containing contaminants.
- B. Indoor Environmental Quality: Comply with ASHRAE Std 62.1 to reduce indoor environmental quality issues resulting from contaminants during and after construction until Date of Substantial Completion.
 - 1. Identify methods for controlling air contaminants, such as odors and irritants generated during the Work based on ANSI/SMACNA 008 SMACNA IAQ Guidelines for Occupied Buildings under Construction.
 - Avoid use of materials high in pollutants, such as volatile organic compounds (VOCs) or toxins. Refer to Section 01 61 16 - Volatile Organic Compound (VOC) Content Restrictions for applicable limits.
 - 3. Avoid entrainment of pollutants into ventilation air path.
 - 4. Sufficiently ventilate enclosed areas.
 - 5. Protect organic matter and materials against mold, insect infestation, or absorption of odors.
 - 6. Sequence construction activities to prevent absorption of contaminants by building materials.
 - 7. Limit use of building ventilation system during construction activities. For systems that are used during construction activities, utilize filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 at each return air grille complying with ASHRAE Std 52.2.
 - a. Cover diffusers, registers, grilles, and open ducts during construction to prevent dust and odors from entering ventilation system.
 - b. Replace filtration media prior to Date of Substantial Completion with media having Minimum Efficiency Reporting Value (MERV) of 13, unless noted otherwise. Refer to Division 23 and Mechanical Drawings.
- C. VOC Content Limitations Requirements: Utilize materials and products complying with VOC content limitations for low emitting materials as indicated in Section 01 61 16 Volatile Organic Compound (VOC) Content Restrictions.
- D. Restricted Components for Paint and Coatings: EPA prohibited components in the formulation of paints and coatings.
- E. Mold, Mildew, and Moisture Stains: Materials that evidence growth of molds or mildew or moisture stains are not permitted, including both stored and installed materials. Immediately remove from site and dispose of properly.

1.6 SUBMITTALS

- A. IAQ Management Plan: Minimum 10 days before commencement of the Work, prepare and submit an IAQ Management Plan including, but not limited to, the following:
 - 1. Procedures for control of emissions during construction.
 - 2. Identify schedule for application of interior finishes.
 - 3. Procedures for moisture control during construction.
 - 4. Identify porous materials and absorptive materials.
 - 5. Identify schedule for inspection of stored and installed absorptive materials.
 - 6. Revise and resubmit Plan as required by Owner. Approval of Contractor's Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations.
- B. Product Data: Submit product data for filtration media used during construction and during operation. Include Minimum Efficiency Reporting Value (MERV).
 - 1. Submit air pressure difference maps for each mode of operation of HVAC.

1.7 QUALITY ASSURANCE

A. Regulatory Requirements:

- 1. American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE): Comply with requirements applicable to air quality control.
 - a. ASHRAE Std 52.2 Method of Testing General Ventilation Air Cleaning Devices for Removal Efficiency by Particle Size.
 - b. ASHRAE Std 55 Thermal Environmental Conditions for Human Occupancy.
 - c. ASHRAE Std 62.1 Ventilation for Acceptable Indoor Air Quality.
 - d. ASHRAE Std 129 Measuring Air Change Effectiveness.
 - e. ASHRAE Std 90.1 I-P: Energy Standard for Buildings Except Low Rise Residential.
- 2. SMACNA IAQ Guidelines for Occupied Buildings under Construction.
- B. Pre-Construction Conference: Conduct conference to review methods and procedures related to environmental quality procedures and responsibilities. Review Construction Environmental Program with staff and subcontractors.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Air Infiltration Media: Minimum Efficiency Reporting Value (MERV) as determined by ASHRAE Std 52.2 :
 - 1. MERV 8 for filtration media used at each return air grill, if used during construction.
 - 2. MERV 13 for filtration media installed at the end of construction and prior to occupancy, unless noted otherwise. Refer to Division 23 specifications.
- B. Cleaning Materials: Low toxic and low emitting spot removers and cleaning agents for surfaces, equipment, and workers' personal use. Use HEPA filters equipped vacuum cleaners for the final cleaning.

PART 3 EXECUTION

3.1 IMPLEMENTATION

- A. Implement, monitor, and enforce IAQ Management Plan during demolition and construction activities until date of Final Completion.
 - 1. Control dust particles, aerosols, and gaseous byproducts from demolition and construction activities, processing, and preparation of materials.
 - 2. Perform particulate control as Work proceeds and whenever particulate nuisance or hazard occurs
 - 3. Potential sources of emissions include the following:
 - a. Environmental Tobacco Smoke: Lighted cigarettes, cigars, pipes, vapes.
 - b. Combustion Contaminants: Furnaces, generators, gas or kerosene space heaters, tobacco products, outdoor air, vehicles.
 - c. Biological Contaminants: Wet or damp materials, cooling towers, humidifiers, cooling coils or drain pans, damp duct insulation or filters, condensation, re-entrained sanitary exhausts, bird droppings, cockroaches or rodents, dustmites on upholstered furniture or carpeting, body odors.
 - d. Volatile Organic Compounds (VOC): Paints, stains, varnishes, solvents, pesticides, adhesives, wood preservatives, waxes, polishes, cleansers, lubricants, sealants, dyes, air fresheners, fuels, plastics, copy machines, printers, tobacco products, perfumes, dry cleaned clothing.
 - e. Formaldehyde: Particle board, plywood, cabinetry, insulation, furniture, fabrics.
 - f. Soil Gases (Radon, Sewer Gas, VOC, Methane): Soil and rock (radon), sewer drain leak, dry drain traps, leaking underground storage tanks, land fill.
 - g. Pesticides: Termiticides, insecticides, rodenticides, fungicides, disinfectants, herbicides.

- h. Particles and Fibers: Printing, paper handling, smoking and other combustion, outdoor sources, deterioration of materials, construction/renovation, vacuuming, insulation.
- B. Housekeeping and Pest Management Procedures: During demolition and construction, maintain project and building products and systems to prevent contamination of building spaces.
 - 1. Designate area for food storage and consumption. Immediately dispose of food or food residues after meals or breaks in appropriate waste or recycling containers.
 - a. Food and drink is not permitted inside building footprint.
 - 2. Minimize entry of dirt into enclosed building with installed finishes with walk-off grilles or mats at entrances. Clean entry grilles or mats daily.
 - 3. Sweep using dust reducing wax based sweeping compounds.
 - 4. Keep materials clean and stored neatly on dunnage or pallets required by manufacturer.
 - 5. Inspect and clean coils, fans, and air-handler chambers including return air chambers prior to start up, final testing, commissioning, and air testing.

3.2 EMISSIONS CONTROL

- A. During construction operations, follow the recommendations in SMACNA IAQ Guidelines for Occupied Buildings under Construction.
- B. HVAC Protection:
 - 1. Seal return registers during construction operations.
 - 2. Provide temporary exhaust during construction operations
 - 3. To the greatest extent possible, isolate and/or shut down the return side of the HVAC system during construction. When ventilation system must be operational during construction activities, provide temporary filters.
- C. Source Control: Control odors from construction activities, processing, and preparation of materials from potentially noxious materials. Identify and employ control measures complying with SMACNA guidelines.
 - 1. Smoking and tobacco materials are not permitted in building.
 - 2. Vaping is not permitted in building.
 - 3. Use of gasoline or fuel fired equipment is not permitted inside enclosed building.
 - 4. Keep wet processes within enclosed building to a minimum.
 - 5. Protect chase and wallboard materials from water. Remove and replace damaged materials.
 - 6. Use low-emission materials and chemicals.
 - 7. Perform cleaning involving chemicals outside building to the greatest extent possible.
 - 8. Remove waste daily to the appropriate recycle container.
 - 9. Treat mold growth according to the procedures recommended by the EPA.
 - 10. Clean inside of walls at base track to remove excess materials and dirt with vacuum prior to enclosing wall.
 - 11. HEPA vacuum concrete floors before installation of floor covering materials.
 - 12. Do not enclose, hide, or paint over mold or chemical contamination.
- D. Temporary Ventilation: Provide an ACH (air changes per hour) of 1.5 or more and as follows:
 - Provide minimum 48 hour pre-ventilation of packaged dry products prior to installation. Remove from packaging and ventilate in a secure, dry, well-ventilated space free from strong contaminant sources and residues. Provide a temperature range of 60 degrees F minimum to 90 degrees F maximum continuously during the ventilation period. Do not ventilate within limits of Work unless otherwise approved by Architect.
 - 2. Provide adequate ventilation during and after installation of interior wet products and interior final finishes.

- Provide filtration media with Minimum Efficiency Reporting Value (MERV) of 8 as determined by ASHRAE Std 52.2 during construction. Coordinate with Work of mechanical specifications.
- E. Hydrocarbons and Carbon Monoxide Emissions from Equipment: Control emissions to comply with federal, state, and local allowable limits. For potentially noxious materials, identified and employ control measures complying with SMACNA guidelines.
- F. Monitoring Indoor Air Quality: Monitor air areas affected by construction activities.
- G. HVAC System: To extent possible, isolate or shut down return side of HVAC system during construction activities.
 - 1. HVAC System Protection: When ventilation system is operational, provide temporary, replaceable filters and seal return air openings.
 - a. Comply with recommendations of SMACNA IAQ "Guideline for Occupied Buildings Under Construction."
 - b. Keep air handling equipment, ducts, and accessories clean during transportation, storage and assembly.
 - c. Wrap lined, spiraled, and assembled ducts and protect from dirt and water during transportation and storage.
 - d. Keep insulation and lined ducts dry. Remove and replace insulation that becomes wet.
 - e. Keep fiberglass duct board in air handlers and bases dry and clean. Coat exposed fiberglass subject to erosion with sealer to prevent entry of raw fiberglass into air stream.
 - f. Do not permit water to stand on mechanical equipment.
 - g. Cover and seal open ends of installed duct and equipment to prevent the entry of dirt.
 - h. Wrap zone boxes and seal from dirt and water before installation. Seal openings in installed zone boxes until permanently connected to ductwork.
 - i. Cover dampers and attenuators into open chases and ducts to reduce dirt entry.
 - j. Do not start air handlers without MERV 8 filtration at each return grille. Upon system activation, install sheet media on return openings and filters in zone box plenum openings.
 - 1) Monitor and change media filters as necessary to prevent the entry of dirt into the system.
 - 2) Remove temporary media after building flush out and before occupancy.
 - k. Do not permit use of return air system during gypsum board installation, sanding or painting operations.
 - I. Keep building under a positive pressure to the extent possible.
 - m. Keep chase dampers closed until the system is activated.
 - n. Complete the initial mechanical checklists at system startup.
 - o. Replace final filters with new MERV 13 filters before flush out or occupancy.
 - 2. Inspect ductwork for refuse, contaminants, moisture, and foreign contamination prior to commissioning by Owner. Notify Owner of satisfactory inspection prior to beginning of commissioning.
 - 3. HVAC System Cleaning: Clean coils, media filters, and fans before performing testing and balancing procedures and before conducting air quality tests or flush out.
- H. Pathway Interruption: Isolate areas of Work necessary to prevent contamination of clean or occupied spaces. Provide pressure differentials or physical barriers to protect clean or occupied spaces.
 - 1. Humidity Conditions: During rain or high humidity conditions, cool air supply from coils to 55 degrees F or stop air handler stopped to prevent moist air entry into building. Do not permit exhaust fans to draw moist air into building.
 - 2. Cover return air dampers and openings with filter media during construction operations.

- I. Scheduling: Schedule construction operations involving wet and odorous materials and products prior to packaged dry products or odor absorbent materials and products to reduce absorption of VOCs by porous materials.
 - 1. To the extent possible, group contaminating operations.
 - 2. Replace materials and products directly exposed to moisture through precipitation, plumbing leaks, or condensation from the HVAC system that are susceptible to microbial contamination.

3.3 MOISTURE CONTROL

- A. Housekeeping:
 - 1. Keep materials dry. Protect stored on site and installed absorptive materials from moisture damage.
 - 2. Verify installed materials and products are dry prior to sealing and weatherproofing the building envelope.
 - 3. Install interior absorptive materials after building envelope is sealed and weatherproofed.
- B. Inspections: Document and report results of inspections; state whether inspections indicate satisfactory conditions.
 - 1. Examine materials for dampness as they arrive. When acceptable to Architect and Owner, dry damp materials completely prior to installation; otherwise, reject materials that arrive damp.
 - 2. Examine materials for mold upon arrival; and reject materials contaminated with mold.
 - 3. Inspect stored and installed absorptive materials regularly for dampness and mold growth. Inspect periodically and after each rain event.
 - a. When stored on site or installed absorptive materials become wet, notify Architect and inspect for damage. If acceptable to the Architect and the Owner, dry completely prior to closing in assemblies; otherwise, remove and replace with new materials.
 - 4. Plumbing: Verify pressure test of pipes and drains is performed prior to closing in and insulating lines.
 - 5. HVAC: Inspect HVAC system in accordance with mechanical specifications to verify:
 - a. Condensate pans are sloped and plumbed correctly.
 - b. Access panels are installed to allow for inspection and cleaning of coils and ductwork downstream of coils.
 - c. Ductwork and return plenums are air sealed.
 - d. Duct insulation is installed and sealed.
 - e. Chilled water line and refrigerant line insulation are installed and sealed.
- C. Schedule:
 - 1. Schedule Work to endure absorptive materials, including but not limited to porous insulations, paper faced gypsum board, ceiling tile, and finish flooring, are not installed until building is enclose and materials can be protected from rain and construction related water.
 - 2. Schedule installation of moisture control materials, including but not limited to air barriers, flashing, exterior sealants and roofing, to reduce exposure of the elements.
- D. Testing for Moisture Content: Test moisture content of porous materials and absorptive materials to ensure materials are dry before sealing into an assembly. Document and report results of testing. Where tests are not satisfactory, dry materials and retest. If satisfactory results cannot be obtained with retest, remove and replace with new materials.
 - Concrete: Moisture test prior to finish flooring application. Moisture test in accordance with one or more of the following; unless otherwise indicated, acceptable upper limits for concrete are less than 4 percent top inch; less than 85 percent headspace RH; less than 3 lb / 1,000 sq. ft. / day (1.4 kg / 92.9 sq. m / day):
 - a. ASTM D4263 Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.

- b. ASTM F1869 Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
- c. ASTM F2170 Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In Situ Probes.
- 2. Wood: Moisture test in accordance with ASTM D4444 Standard Test Methods for Use and Calibration of Hand Held Moisture Meters; unless otherwise indicated acceptable upper limits for wood products are less than 20 percent at center of piece and less than 15 percent at surface.
- 3. Gypsum Board, Plaster, Insulation, and Absorptive materials: Moisture test with a Pinless Moisture Meter to assess patterns of moisture, if any.
- E. Testing for Moisture Penetration:
 - 1. Windows: Test in accordance with ASTM E1105 Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform or Cyclic Static Air Pressure Difference; unless otherwise indicated, acceptable upper limits are no leakage for 15 minutes.
 - 2. Horizontal Waterproofing (other than roofing): Test in accordance with ASTM D5957 Standard Guide for Flood Testing Horizontal Waterproofing Installations; acceptable upper limits are no leakage for 15 minutes.
 - Masonry: Test in accordance with ASTM C1601 Standard Test Method for Field Determination of Water Penetration of Masonry Wall Surfaces; acceptable upper limits are no leakage for 15 minutes.
 - 4. Exterior Walls:
 - Air Tightness of the Enclosure Test: ASTM E779 Standard Test Method for Determining Air Leakage Rate by Fan Pressurization or ASTM E1827 Standard Test Methods for Determining Air tightness of Buildings Using an Orifice Blower Door. Refer to cladding specification sections for acceptable upper limits of leakage.
 - b. Water Leakage: Review in accordance with ASTM E2128 Standard Guide for Evaluating Water Leakage of Building Walls.
- F. Testing for Support of Microbial Growth: Test and report in accordance with ASTM D6329 ASTM D6329 Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers. Indicate susceptibility of product or material to colonization and amplification of microorganisms. Identify microorganisms and conditions of testing.
 - 1. Normal Conditions: Perform testing at 95 degrees F (35 degrees C) and 50 percent relative humidity.
 - 2. Extreme Conditions: Perform worst case scenarios screening tests by providing an atmosphere where environmental conditions may be favorable for microbial growth.
 - 3. Perform testing for the following:
 - a. Fireproofing material on appropriate substrate.
 - b. Ceiling tile.
 - c. Wallcovering.

3.4 SPECIFICATION REQUIREMENTS

- A. Refer to individual specification sections for details.
 - 1. Division 06 Wood, Plastics, and Composites:
 - a. Utilize fiberboard that is urea formaldehyde free and does not exceed ANSI A208.1 emission standard of 0.20 ppm of formaldehyde.
 - b. Structural Fiberboard (OSB, MDF, and Particleboard): Utilize structural fiberboard that maximizes post-consumer waste material.
 - c. Plastic Laminate: Install plastic laminate with water based, urea formaldehyde free, low VOC (volatile organic compound) adhesive.

- d. Millwork and Casework Adhesives: Provide water based, urea formaldehyde free, low VOC adhesives.
- e. Transparent Wood Finish Systems: Utilize waterborne acrylic sealers and finish coats.
- f. Chromated Copper Arsenate (CCA): Use of CCA as a wood treating material is not permitted; use of ammonium copper quat (ACQ) is acceptable.
- g. Cast Resin (Solid Surface) Countertops: Provide water based, aero or low VOC silicone sealant.
- 2. Division 08 Openings:
 - a. Glass and Glazing:
 - 1) Sealants and Glazing Compounds: Utilize low VOC content.
 - 2) Sealants and glazing compounds formulated with aromatic solvents (organic solvent with a benzene ring in its molecular structure), fibrous talc, or asbestos, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium, or their components are prohibited.
- 3. Division 09 Finishes:
 - a. Gypsum Drywall:
 - 1) Gypsum Board and Accessories: Utilize gypsum board containing recycled or synthetic gypsum and facing paper manufactured from recycled newsprint including post-consumer waste.
 - 2) Joint Compound: Utilize dustless joint compound having low VOC content.
 - 3) Multilayer Gypsum Board Applications: Screw attached gypsum board; laminated with adhesives is prohibited.
 - 4) Thoroughly clean and remove silica/gypsum dust upon completion of gypsum drywall installation, including, but not limited to, components in plenum spaces, including tops of pipes and sills, and insides and outsides of ducts.
 - 5) Joint Tape: Utilize paper joint tape; fiberglass tape is prohibited.
 - 6) Steel Studs, Runners, and Channels for Framing: Utilize components with recycled steel content.
 - b. Sound Attenuation Blanket:
 - 1) Glass Fiber Blanket: Use sound blanket with recycled material content.
 - 2) Cotton Blankets: Use sound blankets with recycle natural cotton fiber content.
 - 3) Mineral Fiber Blankets: Utilize sound blanket with recovered material.
 - c. Acoustic Panel Ceilings:
 - 1) Utilize ceiling panels having recycled material and finished with water based low VOC paint.
 - 2) Suspension Systems: Provide steel components having recycled material.
 - d. Resilient Flooring:
 - 1) Adhesives: Utilize adhesives having low VOC content.
 - e. Field Paint and Polychromatic Finish Coating: Refer to Section 09 90 00 Painting and Coating.
 - Use of water based paints formulated with aromatic hydrocarbons (organic solvent with a benzene ring in its molecular structure), formaldehyde, halogenated solvents, mercury or mercury compounds, or tinted with pigments of lead, cadmium, chromium VI and their oxides is prohibited.
 - 2) Provide water based paints having zero or low VOC content and flash point of 142 degrees F (61 degrees C) or greater.
 - 3) Where necessary to use solvent based paints, provide paints formulated for compliant VOC emissions; formulated without formaldehyde, halogenated solvents, mercury or mercury compounds, or tinted with pigments of lead, cadmium, chromium VI and their oxides; and not formulated with more than 10% aromatic hydrocarbons by weight.

- 4) Provide paints and coatings having zero or low VOC content and not formulated with aromatic hydrocarbons (organic solvent with a benzene ring in its molecular structure) formaldehyde, halogenated solvents, mercury or mercury compounds, or tinted with pigments of lead, cadmium, chromium VI and their oxides.
 - (a) High performance water based acrylic coatings.
 - (b) Pigmented acrylic sealers.
 - (c) Catalyzed epoxy coatings.
 - (d) High performance silicone grafted epoxy coatings.

END OF SECTION 01 35 46

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SECTION 01 40 00 - QUALITY 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.

1.2 SUMMARY

- A. Section Includes: Administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality assurance and quality control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality assurance and quality control procedures that facilitate compliance with Contract Document requirements.
 - 3. Requirements for Contractor to provide quality assurance and quality control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions.
 - 4. Specific test and inspection requirements are not specified in this Section.

1.3 **DEFINITIONS**

A. Refer to Section 01 42 16 - Definitions for the following terms:

- 1. Experienced.
- 2. Installer/Applicator/Erector.
- 3. Mockups.
 - a. Laboratory Mockups.
 - b. Integrated Exterior Mockups.
 - c. Room Mockups.
- 4. Quality Assurance Services.
- 5. Quality Control Services.
- 6. Testing:
 - a. Field Quality Control Testing.
 - b. Preconstruction Testing.
 - c. Product Testing.
 - d. Source Quality Control Testing.
- 7. Testing Agency.
- B. 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).

1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision 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.

1.5 SUBMITTALS

- A. Shop Drawings: Submit plans, sections, and elevations, indicating materials and size of mockup construction.
 - 1. Indicate manufacturer and model number of individual components.
 - 2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.
- B. Contractor's Statement of Responsibility: When required by Authorities Having Jurisdiction (AHJ), submit copy of written statement of responsibility sent to Authorities Having Jurisdiction (AHJ)authorities having jurisdiction before starting Work on the following systems:
 - 1. Seismic force resisting system, designated seismic system, or component listed in the designated seismic system quality assurance plan prepared by Architect.
 - 2. Main wind force resisting system or wind resisting component listed in the wind force resisting system quality assurance plan prepared by Architect.
- C. 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.
 - 9. Unique characteristics of each quality control service.

1.6 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 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 inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and reinspecting.
- B. 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, and telephone number of technical representative making report.
 - 2. Statement on condition of substrates and their acceptability for installation of product.
 - 3. Statement that products at site comply with requirements.

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- 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.
- 7. Other required items indicated in individual Specification Sections.
- C. 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, and telephone number 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.
 - 5. Other required items indicated in individual Specification Sections.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.
- E. Trade Preinstallation Conferences: Meeting minutes to be Contractor provided.

1.7 QUALITY ASSURANCE

- A. Qualifications establish the minimum qualification levels required; refer to individual Specification Sections for additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated and sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated and with record of successful in service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, 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 the State of Texas, 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.
- 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 qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction 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 inspecting indicated, documented according to ASTM E329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.
 - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- 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.

- 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.
- 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. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens 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 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, assemblies, mockups, and laboratory mockups; do not reuse products on Project.
 - 2. Testing Agency Responsibilities: Submit certified written report of each test, inspection, and similar quality assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected Work complies with or deviates from the 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 in location and of size indicated or, if not indicated, as directed by Architect.
 - 2. Notify Architect a minimum of seven days in advance of dates and times when mockups will be constructed.
 - 3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction.
 - 4. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 5. Obtain Architect's approval of mockups before starting Work, fabrication, or construction. Allow seven days for initial review and each re-review of each mockup.
 - 6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - 7. Demolish and remove mockups when directed unless otherwise indicated.
- L. Integrated Exterior Mockups: Mockup of the exterior envelope erected separately from the building but on Project site, consisting of multiple products, assemblies, and subassemblies shall be constructed. Mockup, if not specifically shown on the drawings, shall be minimum 8 ft by 8 ft. Mockup shall include all major façade elements and at least one window minimum 2 ft by 2 ft in size. Prior to constructing mockup verify requirements with architect. Pre-installation conferences for trades involved in Integrated Exterior Mockup shall be held after mock up is completed.
- M. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Specification Sections.
- N. Trade Preinstallation Conferences: Meeting minutes to be Contractor provided.

1.8 QUALITY CONTROL

- A. Owner Responsibilities: Where quality control services are indicated as Owner's responsibility, Owner shall engage a qualified testing agency to perform the services.
 - 1. Owner shall furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 - 2. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality control activities required to verify that the Work complies with requirements, whether specified or not.
 - 1. Unless otherwise indicated, provide quality control services specified and those required by authorities having jurisdiction. Perform quality control services required of Contractor by authorities having jurisdiction, whether specified or not.
 - 2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform the quality control services. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 - 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 - 4. Where quality control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality control service.
 - 5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 - 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. 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 31 00 Project Management and Coordination.
- D. 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.
- E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- F. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. Determine the location 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 report, in duplicate, of each test, inspection, and similar qualitycontrol service through Contractor.
 - 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 - 6. Do not perform any duties of Contractor.

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- G. Associated Services: Cooperate with agencies 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 inspecting. 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.
 - 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, 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 the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
 - 1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.9 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner shall engage a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner:
- B. Special Tests and Inspections: Conducted by a qualified testing agency or special inspector as required by authorities having jurisdiction, as indicated in individual Specification Sections.
 - 1. Verifying that manufacturer maintains detailed fabrication and quality control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
 - 2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 - 3. Submitting a certified written report of each test, inspection, and similar quality control service to Architect with copy to Contractor and to authorities having jurisdiction.
 - 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 - 5. Interpreting tests and inspections and stating in each report whether tested and inspected Work complies with or deviates from the Contract Documents.
 - 6. Retesting and reinspecting corrected Work.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 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 Architect.
 - 4. Identification of testing agency or special inspector conducting test or inspection.

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B. Maintain log at site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. On completion of testing, inspecting, 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. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 73 29 - Cutting and Patching.
- B. Protect construction exposed by or for quality control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality control services.

END OF SECTION 01 40 00

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SECTION 01 41 00 - REGULATORY REQUIREMENTS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications, and the Sections included under Division 01 General Requirements and References, are included as a part of this Section as though bound herein.

1.2 SUMMARY

- A. Related Sections:
 - 1. Section 01 40 00 Quality Requirements.

1.3 REFERENCE STANDARDS

- A. 2012 TAS Texas Accessibility Standards; 2012.
- B. ADA Standards 2010 ADA Standards for Accessible Design; 2010.
- C. ASCE 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures, Includes Supplements 1 and 2; 2022.
- D. ICC (IBC) International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- E. ICC (IEBC) International Existing Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- F. ICC (IFGC) International Fuel Gas Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. ICC (IPC) International Plumbing Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- H. ICC A117.1 Accessible and Usable Buildings and Facilities; 2017.
- I. NFPA 1 Fire Code; 2024, with Errata.
- J. NFPA 70 National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- K. NFPA 80 Standard for Fire Doors and Other Opening Protectives; 2025.
- L. NFPA 241 Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).
- M. Refer to individual Sections for additional Reference Standards applicable to the scope of work defined by that Section..

1.4 QUALITY ASSURANCE

A. Contractor's Designer Qualifications: Refer to Section 01 40 00 - Quality Requirements.

PART 2 PRODUCTS

2.1 DESCRIPTION

- A. Regulatory Requirements:
 - 1. Code Requirements:
 - a. Perform all work on this Project in strict accordance with, but not limited to, applicable requirements and portions of the latest adopted editions of the currently adopted codes, revisions, amendments, supplements, and their references.
 - 1) Building Codes:
 - (a) International Building Code ICC (IBC).
 - (b) International Existing Building Code ICC (IEBC).
 - (c) International Fuel Gas Code ICC (IFGC).

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- (d) International Plumbing Code ICC (IPC).
- (e) National Electric Code (NFPA 70).
- b. Miscellaneous NFPA;
- c. Accessibility:
 - 1) Texas Accessibility Standard (2012 TAS).
 - 2) U.S. Department of Justice, ADA Standards 2010 ADA Standards for Accessible Design.
 - U.S. Department of Justice Accessibility Guidelines for Buildings and Facilities (ADAAG).
 - 4) ICC A117.1 Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.
- d. Other:
 - 1) American Society of Civil Engineers ASCE 7:
 - 2) Minimum Design Loads for Buildings and Other Structures.
 - Demolition: Comply with NFPA 1 Chapter 29 and NFPA 241 Standard for Safeguarding Construction Alteration and Demolition Operation Latest Adopted Edition.
- 2. Code Standards:
 - a. All work shall conform to applicable portions of the adopted, or the latest edition of the standards listed, which shall include, but is not limited to, the following:
 - 1) Aluminum Association (AA).
 - 2) American Concrete Institute (ACI).
 - 3) American Institute of Steel Construction (AISC).
 - 4) American National Standards Institute (ANSI).
 - 5) American Society for Testing and Materials (ASTM).
 - 6) American Society of Mechanical Engineers (ASME).
 - 7) American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE).
 - 8) American Welding Society (AWS).
 - 9) Architectural Woodworking Institute (AWI).
 - 10) Architectural Aluminum Manufacturer's Association (AAMA).
 - 11) Commercial Standards (CS).
 - 12) Federal Specifications and Standards (FSS).
 - 13) National Safety and Health Administration (OSHA).
 - 14) National Institute for Standards and Technology (NIST).
 - 15) Architectural Sheet Metal Manual (SMACNA).
 - 16) Underwriter's Laboratories (UL).
 - 17) U.S. of America Standards Institute (ASI).
 - 18) U.S. Department of Commerce Product Standards (USDCPS).
- 3. Code Discrepancies:
 - a. In case of discrepancy between the codes, standards, and specifications listed, the strictest or most stringent requirement shall govern.
- 4. Compliance with Codes:
 - a. A permit issued will be construed as permission to proceed with construction, and not as authority to violate, cancel, alter, or set aside any of the provisions of any Codes.
 - b. Nor shall issuance of a permit prevent the Owner from thereafter requiring a correction of errors in plans, construction, or violations of any Codes.

PART 3 EXECUTION

3.1 NOT USED

END OF SECTION 01 41 00

Regulatory Requirements 01 41 00 - 2

SECTION 01 42 00 - REFERENCES

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 DESCRIPTION OF WORK REQUIREMENTS

- A. General: This Section specifies procedural and administrative requirements for compliance with governing regulations and codes and standards imposed upon the Work. These requirements include the obtaining of permits, licenses, inspections, releases, and similar statements, as well as payments associated with regulations, codes, and standards.
- B. Governing Regulations: Refer to General and Supplementary Conditions for requirements related to compliance with governing regulations.

1.3 **DEFINITIONS**

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Approved.
 - 2. Directed.
 - 3. Furnish.
 - 4. Indicated.
 - 5. Install.
 - 6. Provide.
 - 7. Regulations.
 - 8. Testing Agencies.

1.4 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference. Individual Specification Sections indicate which codes and standards the Contractor must keep available at the project site for reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Conflicting Requirements: Where compliance with two or more standards is specified, and where these standards establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced, unless the Contract Documents specifically indicate a less stringent requirement. Refer requirements that are different, but apparently equal, and uncertainties as to which quality level is more stringent to the Architect for a decision before proceeding.
- D. Minimum Quantities or Quality Levels: In every instance the quantity or quality level shown or specified is intended to be the minimum for the Work to be provided or performed. Unless otherwise indicated, the actual Work may either comply exactly, within specified tolerances, with the minimum quantity or quality specified, or may exceed that minimum within reasonable limits. In complying with these requirements, the indicated numeric values are either minimum or maximum values, as noted, or as appropriate for context of the requirements. Refer instances of uncertainty to the Architect for decision before proceeding.

1.5 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the trade association, standards-

References 01 42 00 - 1

producing organization, authorities having jurisdiction or other entity applicable to the context of the text provision.

- B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the Agency.
- C. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations.

1.6 SUBMITTALS

A. Permits, Licenses and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

PART 2 PRODUCTS NOT USED PART 3 EXECUTION NOT USED

END OF SECTION 01 42 00

References 01 42 00 - 2

SECTION 01 42 16 - DEFINITIONS

PART 1 GENERAL

1.1 CONTRACTING DEFINITIONS

- A. General: Basic Contract definitions included through Section 00 70 00 Conditions of the Contract include:
 - 1. Change Order.
 - 2. Construction Change Directive.
 - 3. Contract Documents.
 - 4. Contract.
 - 5. Drawings.
 - 6. Instruments of Service.
 - 7. Initial Decision Maker.
 - 8. Project.
 - 9. Specifications.
 - 10. Subcontractor.
 - 11. Substantial Completion.
- B. Miscellaneous Other Definitions
 - 1. Addenda, Addendum.
 - 2. Alternate Proposal(s).
 - 3. Approved, Approved Equivalent, Approved Equal, or Equal.
 - 4. Base Proposal.
 - 5. Contract Time.
 - 6. Date of Agreement.
 - 7. Date of Commencement of the Work.
 - 8. Date of Final Completion.
 - 9. Notice to Proceed.
 - 10. Provide.
 - 11. Punch List.
 - 12. Unit Prices.

1.2 **DEFINITIONS**

Α.

Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.

Predecessor Activity: An activity that precedes another activity in the network. Successor Activity: An activity that follows another activity in the network.

Adequate Ventilation: Ventilation, including air circulation and air changes, required for curing materials, dissipate humidity, and prevent accumulation of dust fumes, vapors, or gases.

Adhesives: All gunnable, trowelable, liquid-applied, and aerosol adhesives, whether specified or not; including flooring adhesives, resilient base adhesives, and pipe jointing adhesives.

1. AESS: Refer to Architecturally-Exposed Structural Steel.

Alteration Work: Remodeling, renovation, repair, and maintenance work performed within existing spaces or on existing surfaces as part of the Project.

Alternate: An amount proposed by bidders and stated on the Bid Form for certain Work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

Alternates described are part of the Work when enumerated in the Agreement. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

- 2.
- 3. Anchorage Connector: A component or subsystem that functions as an interface between the anchorage and a fall protection, work positioning, rope access, or rescue system for the purpose of coupling the system to the anchorage.
- 4. Architecturally-Exposed Structural Steel (AESS): Structural steel complying with designated AESS category as defined in AISC 303.
 - a. Category 2 AESS: AESS that is within 20 feet vertically and horizontally of a walking surface and that is visible to a person standing on that walking surface or is designated as "Category 2 architecturally exposed structural steel" or "AESS-2" in the Contract Documents.
- 5. Basis of Design (BOD) (Document): A document that records the concepts, calculations, decisions, and product selections used to meet the Owner's Project Requirements and to satisfy applicable regulatory requirements, standards and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.
- 6. Basis of Design (BoD) (Product): A product around which the project has been designed. If a product other than the Basis of Design is provided, it must be coordinated with Architect.
- 7. Basis of Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "Basis of Design Product", including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.
- Β.
- 1. Casework: Products including, but not limited to framework, doors, drawers, hardware, and finishes which constitute cabinets and cases.
 - a. Concealed: Sleepers, web frames, dust panels and other surfaces not generally visible after installation and cabinets less than 30 inches (762 mm) above finished floor.
 - b. Exposed: Portions of casework visible when drawers and cabinet doors are closed, including end panels, bottoms of cases more than 42 inches (1.066 m) above finished floor, tops of cases less than 72 inches (1.82 m) above finished floor and all members visible in open cases or behind glass doors.
 - c. Semi-Exposed: Portions of casework and surfaces behind solid doors, tops of cases more than 72 inches (1.828 m) above finished floor and bottoms of cabinets more than 30 inches (0.762 m) but less than 42 inches (1.066 m) above finished floor.

Cast Stone: Refined architectural concrete building unit manufactured to simulate natural cut stone, used in unit masonry applications.

Dry Cast Concrete Products: Manufactured from zero slump concrete:

Vibrant Dry Tamp (VDT) casting method - Vibratory ramming of earth moist, zero slump concrete against a rigid mold until densely compacted.

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Wet Cast Concrete Products: Manufactured from measurable slump concrete: Wet casting method - Manufactured from measurable slump concrete and vibrated into a mold until densely consolidated.

Certified Wood: Wood based materials and products certified in accordance with Forest Stewardship Council's (FSC) Principles and Criteria for wood building components. Chain-of-Custody Certificates: Certificates signed by manufacturers certifying that wood used to make products was obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001. Certificates shall include evidence that manufacturer is certified for chain of custody by an FSC-accredited certification body. A chain-of- custody certification is not required by distributors of a product that is individually labeled with the Forest Stewardship Council logo and manufacturer's chain of custody number. Chain of Custody certification requirements are determined by Forest Stewardship Council Chain of Custody Standard 40-004 v2-1.

Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like. Commissioning (Cx): A systematic process confirming that building systems have been installed, properly started, and consistently operated in strict accordance with the Project Documents, that all systems are complete and functioning in accordance with the Contract Documents at Substantial Completion, and the Contractor has provided the Owner adequate system documentation and training.

Commissioning Authority (CxA): Party having a contractual agreement with the Owner to provide third party commissioning services as defined herein under Commissioning Authority's Role and Responsibilities. Commissioning Authority may represent the Owner and is authorized to act on behalf of the Owner. The Commissioning Authority does not have authority to alter design or installation procedures without the written approval of the Owner or the design team.

- 2. Comparable Product: Product demonstrated and approved through submittal process, or where indicated as a produce substitution, 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.
- 3. Composite Materials: Materials made from two or more constituent materials with significantly different physical or chemical properties that, when combined, produce materials with characteristics different from the individual components.

Composite Wood (also referred to as "Engineered Wood"): Examples of Composite Wood are: particleboard; flake-board; plywood; fiberboard; MDF; agrifiber products; millwork substrates; flooring substrates; equipment backboards; door cores.

Consolidate: To strengthen loose or deteriorated materials in place.

Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

Contract Documents: The General Conditions, Drawings, Specifications, Addenda, and other documents developed by the A/E Team and approved by the Owner that constitute the contractual obligations of the project scope.

Control Point and Sensor Calibration Verification: Process of verifying the point integrity and/or sensor calibration from the physical point of monitoring (sensor, contact, actuator, etc.) to the digital point location at the Operator's interface within the respective control system (Building Automation, Lighting Controls, Power Status and Monitoring, etc.). Cost Loading: The allocation of the schedule of values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum unless otherwise approved by Architect.

Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

Critical Path Method (CPM): A method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.

C.

Deconstruct: To remove by disassembling or detaching an item from a surface, using methods and equipment to successfully prevent damage to the item and surfaces, and dispose of items unless indicated as salvaged or for reinstallation.

Deferred Testing: Functional Performance or Integrated System Tests performed after Substantial Completion due to partial occupancy, partial equipment acceptance, seasonal requirements, design, or other site conditions that prohibit the test from being performed prior to Substantial Completion.

Deficiency: Condition of a component, piece of equipment, or system that is not in compliance with the Project Documents.

Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

Design Reference Sample: A sample that represents the Architect's prebid selection of Work to be matched; it may be existing Work or Work specially produced for the Project. Directed: A command or instruction by Architect. Other terms including "requested," "authorized", "selected", "required", and "permitted" have the same meaning as "directed." Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D.

Engineered Wood: Refer to Composite Wood.

Equipment: A product with operational parts, regardless of whether motorized or manually operated, and in particular, a product that requires service connections such as wiring or piping.

Existing to Remain: Leave existing items that are not scheduled for salvage or reuse, as is; do not remove.

Experienced: When used with an entity or individual, experienced means having successfully completed a minimum of five years documented experience with projects similar in nature, size, and extent; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

Ε.

- 1. Fall Arrest System: A system designed to stop you in the process of a fall, typically including an anchor point or series of anchor points, a safety lanyard or self-retracting lifeline, and a harness.
- 2. Fall Protection System: System can be either a fall arrest or a fall restraint system.
- 3. Fall Restraint System: A system designed to keep you from getting close enough to the fall hazard to fall, typically including an anchor point or series of anchor points, a safety lanyard or self-retracting lifeline, and a harness.
- 4. Fiber-Reinforced Polymer (FRP): Material that consists of polymer resin-based matrix with fibers of either glass, carbon or aramid, and hybrid combinations of these fiber types. Field Quality Control Testing: Tests and inspections performed onsite for work scheduled to be performed and upon completed Work.

Float: The measure of leeway in starting and completing an activity.

Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.

Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

Formaldehyde: Naturally occurring VOC, found in small amounts in animals and plants; carcinogenic and irritant to humans when present in high concentrations. (Levels above 0.1 ppm).

Urea Formaldehyde: Combination of urea and formaldehyde, used in glue, and readily decomposes at room temperature.

Phenolformaldehyde: Type of formaldehyde that off gasses only at high temperature; used for exterior products and suitable for interior applications.

Functional Performance Test (FPT): Test of dynamic function and operation of equipment and systems executed by the Contractor and witnessed by the CxA. Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, life safety conditions, power failure, etc. Systems are operated through all specified sequences of operation. Components are verified to be responding in accordance with requirements in the Project Documents. Functional Performance Testing Procedures: Commissioning protocols, detailed test procedures and instructions in tabular and script-type format that fully describe system configuration and steps required to determine if the system is performing and functioning properly.

Furnish: Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

F.

General Emissions Evaluation: To comply with low-emitting material criteria, building products must be tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method v1.2–2017mg/, using the applicable exposure scenario. Manufacturers' claims of compliance with the above requirements must also state the range of total VOCs after 14 days (336 hours), measured as specified in the CDPH Standard Method v1.2: 0.5 mg/m3 or less; between 0.5 and 5.0 mg/m3; or 5.0 mg/m3 or more.

G.

Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.

Hazardous Materials: Material regulated as hazardous material in accordance with 49 CFR 173, requiring Material Safety Data Sheet (MSDS) in accordance with 29 CFR 1910.1200, or which during end use, treatment, handling, storage, transportation, or disposal meets or has components which meet or have the potential to meet the definition of a Hazardous Waste in accordance with 40 CFR 261. Hazardous material includes hazardous chemicals.

Hazardous materials include but are not limited to pesticides, biocides, and carcinogens listed by the Environmental Protection Agency (EPA) and International Agency for Research on Cancer (IARC) and recognized authorities.

Η.

Indicated: Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown", "noted", "scheduled", and "specified" have the same meaning as "indicated." Indoor Air Quality (IAQ): Composition and characteristics of air in an enclosed space affecting occupants of space. The indoor air quality refers to relative quality of air in a

building with respect to contaminants and hazards and is determined by levels of indoor air pollution and characteristics of air, including those that impact thermal comfort such as air temperature, relative humidity, and air speed.

Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

- 1. Integrated Systems Test (IST): Test of dynamic function and operation of multiple systems. Integrated Systems Tests are tested under various modes, such as fire alarm and emergency situations, life safety conditions, power failure, etc. Systems are integrally operated through all specified sequences of operation. Systems and interconnections are verified to be responding in accordance with the requirements in the Project Documents.
- 2. Integrated Systems Testing Procedures: Commissioning protocols and detailed test procedures and instructions in tabular and script-type format that fully describe system configurations and steps required to determine if the interacting systems are performing and functioning properly.
- 3. Interior Final Finishes: Materials and products exposed at interior, occupied spaces including flooring, wallcovering, finish carpentry, and ceilings.
- 4. Install: Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- 5. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform particular construction operations, including installation, erection, application, and similar operations.
- 6. Interior (of Building): Within the weatherproof membrane.

I.

N/A

J.

N/A

K.

1. Lifeline: A component of a fall protection system consisting of a flexible line designed to hang vertically, a vertical lifeline, or connecting to anchorages or anchorage connectors at both ends to span horizontally, a horizontal lifeline.

Look-Ahead Schedule: Prepare schedule indicating activities scheduled to occur or commence prior to submittal of next schedule update.

L.

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

Materials: Products which must be substantially cut, shaped, worked, mixed, finished, refined, or otherwise fabricated, processed, or installed to form units of work.

MERV: Minimum Efficiency Reporting Value: Arrestance rating of filter at three MERV Rating Explanation particle sizes of 0.3 microns to 10 microns at a determined face velocity.

Milestones: measurable and observable and serve as progress markers (flags) but, by definition, are independent of time (have zero durations) therefore no work or consumption of resources is associated with them.

Millwork: Ready-made wood products manufactured at a wood-planing mill or woodworking plant: moldings, doors, door frames, window sashes, stair work, cabinets, etc. excluding flooring, ceilings, and sidings.

Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

Laboratory Mockups: Full-size physical assemblies constructed at testing facility to verify performance characteristics.

Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on Project site, consisting of multiple products, assemblies, and subassemblies.

Room Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes, doors, windows, millwork, casework, specialties, furnishings and equipment, and lighting.

Μ.

Non-Hazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.

Non-Toxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

N.

Operational Testing: Activities and testing occurring after initial energizing and/or start-up of equipment that determine whether equipment is operating within the manufacturer's recommendations and the design requirements. These activities are intended to ensure that equipment and systems meet all warranty requirements and are ready for Functional Performance Testing. Common examples are Testing, Adjusting and Balancing of HVAC systems and initial load testing of electrical equipment.

Owner's Project Requirements (OPR): A written document that details the functional requirements of a project and the expectations of how the facility will be used and operated. These include project goals, measurable performance criteria, cost considerations, benchmarks, success criteria and supporting information.

О.

Packaged Dry Products: Materials and products installed in dry form and delivered in manufacturer's packaging; including carpets, resilient flooring, ceiling tiles, and insulation. Patching: Fitting and repair Work required to restore surfaces to original conditions after installation of other Work.

Pencil Copy: A preliminary review copy of the application for payment for review by Architect and Owner prior to submission of final copy.

Permeable Surface: Surfaces which allow storm water to pass through and infiltrate the soil below.

1. Plastic Composites, or Wood-Plastic Composites: Composite materials made primarily from wood- or cellulose-based materials and plastics.

Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

Project Documents: Consists of the Contract Documents, Approved Submittals, Requests for Information (RFI), Vendor documentation, Operations and Maintenance (O&M) information and other documentation that determines the requirements for acceptable installation and operation of the specific equipment and systems on the project. Project Site: Space available for performing construction activities. The extent of Project

site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

Product: Item 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", "assembly", and terms of similar intent.

- Comparable Product: Product that is demonstrated and approved 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.
- Named Product: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature current as of date of the Contract Documents.
- 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.

Specified Product: Same as Named Product.

Provide: Furnish and install, complete and ready for the intended use.

Ρ.

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.

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. Services do not include contract enforcement activities performed by Architect.

Q.

Recovery Schedule: Submittal of a revised critical path method (CPM) schedule and a written plan.

Recyclable: Ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

Recycled Content: Defined in accordance with the International Organization of Standards document ISO 14021, Environmental labels and declarations, Self-declared environmental claims (Type II environmental labeling).

Postconsumer material is defined as waste material generated by households or by commercial, industrial, and institutional facilities in their role as end users of the product, which can no longer be used for its intended purpose.

Preconsumer material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials, such as rework, regrind, or scrap, generated in a process and capable of being reclaimed within the same process that generated it.

Recycling: Process of sorting, cleansing, treating, and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.

Regulations: Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

Remove: Detach items from existing construction and dispose off-site unless indicated as salvaged or reinstallation.

Repair: To correct damage and defects, retaining existing materials, features, and finishes. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.

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

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

Request for interpretation (RFI): A request seeking one of the following:

An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in Contract Documents.

A resolution to an issue which has arisen due to field conditions and affects design intent.

Resource Loading: The allocation of manpower and equipment necessary for completion of an activity as scheduled.

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

Return: To give back reusable items or unused products to vendors for credit.

Reuse: To reuse a construction waste material in some manner on the project site.

R.

Salvage: Recovery of demolition or construction waste for subsequent sale or reuse. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

Scheduling Specialist (SS): An internal or third party entity contracted to the Owner providing scheduling advice (if applicable).

Sealants: All gunnable, trowelable, and liquid-applied joint sealants and sealant primers, whether specified or not; including firestopping sealants and duct joint sealers. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

Source Separation: Separating waste materials from the time they become waste. Start-Up: The activities where equipment is initially energized, tested and operated. Startup is completed prior to Operational Testing and Functional Performance Testing and is an integral item documented in the System Verification Checklist (SVC).

Strip: To remove existing finish down to base material unless otherwise indicated. Submittals: Written and graphic information and physical samples that require Architect's responsive action or are for information and do not require the architect's action. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.

Substitutions for Cause: Proposed due to changed Project circumstances beyond Contractor's control such as unavailability or regulatory changes.

Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project

Subsystem: A portion of a system with characteristics similar to a system. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

System Verification Checklist (SVC): List of static inspections and material or component tests that verify proper installation of equipment (e.g., belt tension, oil levels, labels

affixed, gages in place, sensors calibrated, etc.), start-up activities and documentation, as well as operational testing results. The checklists are meant to document all activities for an individual piece of equipment from procurement on the project through operational testing are performed in accordance with the requirements in the project documents.

S.

Testing:

Field Quality Control Testing: Tests and inspections performed on site for installation of the Work and for completed Work.

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.

Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

Source Quality Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

Testing Agency: An independent entity engaged to perform specific inspections, tests, or both, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

Testing Laboratory: Refer to Testing Agency.

Toxic: Poisonous to humans either immediately or after a long period of exposure. Training Plan: A detailed plan prepared by the Contractor and reviewed by the Owner and Commissioning Authority that outlines the training activities, instructors, time durations, and system requirements in accordance with the Contract Documents and Commissioning Plan.

Trending: Data collection of monitored points using the Building Automation System, Lighting Controls System, Power Status and Monitoring System or independent data acquisition instrumentation.

Т.

Unit Price: Price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

U.

Volatile Organic Compound (VOC): A carbon compound that vaporizes at normal room temperatures.

V.

Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material. Wet Products: Materials and products installed in wet form, including paints, sealants, adhesives, and special coatings.

1. Wood-Plastic Composites: Refer to Plastic Composites.

W.

N/A

Х.

Υ.

N/A

N/A

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PART 2 PRODUCTS NOT USED PART 3 EXECUTION NOT USED

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SECTION 01 45 23 - TESTING AND INSPECTING SERVICES

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: Requirements and qualifications including but not limited to:
 - 1. Professional testing and laboratory services.
 - 2. Accessories necessary for the completion of testing and laboratory services.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality assurance and quality control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit the Contractor's other quality assurance and quality control procedures that facilitate compliance with Contract Document requirements.
 - 3. Requirements for the Contractor to provide quality assurance and quality control services required by the Architect, the Owner, or the Authorities Having Jurisdiction (AHJ) are not limited by provisions.
 - 4. Specific test and inspection requirements are not specified in this Section.
- C. A qualified independent testing laboratory and/or geotechnical engineering service selected and paid by the Owner.
 - 1. The Owner shall pay for the initial laboratory services of materials that comply with the requirements of the Contract Documents. The Contractor shall pay for testing and retesting of materials that do not comply with the requirements of the Contract Documents.
- D. Inspecting agency shall perform inspections and tests in accordance with the rules and regulations of the building code, local authorities, Specifications of ASTM, and the Contract Documents.
- E. Materials and workmanship found not in compliance with required standards or performance obligations shall be removed and replaced. Replacement and subsequent testing shall be at the Contractor's expense.
- F. Where terms "Inspector" and "Laboratory" are used, it is meant and in reference to an officially designated and accredited inspector of the testing laboratory or geotechnical service engaged by the Owner.
- G. Laboratory inspections shall not relieve the Contractor or the Fabricator of his responsibility to furnish materials and workmanship in accordance with the Contract Documents.
- H. The Contractor or the Fabricator shall cooperate with the testing laboratory in matters pertaining to the Work.
- I. The Contractor shall address deficiency and failed reports.

1.3 REFERENCE STANDARDS

- A. 29 CFR 1910.7 Definition and Requirements for a Nationally Recognized Testing Laboratory; current edition.
- ACI 301 Specifications for Concrete Construction (ACI 301-20); 2020 Edition, September 2020.

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- C. ASTM C31/C31M Standard Practice for Making and Curing Concrete Test Specimens in the Field; 2024.
- D. ASTM E329 Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2023.
- E. ASTM E534 Standard Test Methods for Chemical Analysis of Sodium Chloride; 2018 Edition, February 1, 2018
- F. AWS D1.1/D1.1M Structural Welding Code Steel; 2020, with Errata (2023).

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications:
 - 1. An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, documented according to ASTM E329 and ASTM E534; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
 - a. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 - b. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
 - c. Testing agencies shall be insured against errors and omissions by a professional liability insurance policy having a minimum limit of liability of \$500,000.00.
- B. Inspection and testing services the of testing agency shall be under the direction of a Registered Engineer licensed in the State of Texas, charged with engineering managerial responsibility, and having a minimum of five (5) years engineering experience in inspection and testing of construction materials.
- C. Concrete Inspectors: Inspecting personnel monitoring concrete Work shall be ACI certified inspectors.
- D. Structural Steel: Primary inspectors performing structural steel inspection shall be currently certified AWS Certified Welding Inspectors (CWI), in accordance with the provisions of AWS QCI, Standard and Guide for Qualification and Certification of Welding Inspectors.
 - Inspector may be supported by assistant inspectors who perform specific inspection functions under the direct supervision of the Primary Inspector. Assistant inspectors shall be currently certified AWS Certified Associate Welding Inspectors (CAWI). Work of assistant inspectors shall be monitored daily by the inspector.
- E. Testing Equipment: Equipment shall be calibrated at intervals not exceeding 12 months by devices of accuracy traceable to the National Bureau of Standards.
- F. Referenced Standards: Latest adopted edition of standards referenced apply to the Work. In the event of conflict between the Contract Documents and referenced standards, the Contract Documents shall govern. In case of conflict between Contract Documents and the Building Code, the more stringent shall govern.

1.5 QUALITY CONTROL

- A. Owner Responsibilities: Where quality control services are indicated as the Owner's responsibility, the Owner will engage a qualified testing agency to perform the services.
 - 1. The Owner will furnish the Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 - 2. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to the Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to the Owner are the Contractor's responsibility. Perform additional quality control activities required to verify that the

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Work complies with requirements, whether specified or not.

- 1. Refer to the individual specification sections for specific requirements.
- 2. Unless otherwise indicated, provide quality control services specified and those required by authorities having jurisdiction. Perform quality control services required of Contractor by authorities having jurisdiction, whether specified or not.
- 3. Where services are indicated as the Contractor's responsibility, engage a qualified testing agency to perform the quality control services. The Contractor shall not employ same entity engaged by the Owner, unless agreed to in writing by the Owner.
- 4. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
- 5. Where quality control services are indicated as the Contractor's responsibility, submit a certified written report, in duplicate, of each quality control service.
- 6. Testing and inspecting requested by Contractor and not required by the Contract Documents are the Contractor's responsibility.
- 7. Submit additional copies of each written report directly to the Authorities Having Jurisdiction (AHJ), when they so direct.
- 8. Associated Responsibilities and Services: Cooperate with agencies 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:
 - a. Provide access to the Work.
 - b. Deliver of samples to testing laboratory, without cost to the Owner, in adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - c. Advise laboratory and the Architect sufficiently in advance of construction operations to allow laboratory to complete required inspections or tests and to assign personnel for field inspection and testing as specified.
 - d. Provide facilities for storage and curing of concrete test samples on site for the first 24 hours and for subsequent field curing required by ASTM C31/C31M.
 - e. Incidental labor, facilities, and equipment necessary to assist laboratory personnel in obtaining and handling samples at the site.
 - f. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - g. Provide concrete mix designs in accordance with ACI 301 Section 3.9 made by an independent testing laboratory or qualified concrete supplier. Where mix designs by an independent testing laboratory are required, select and pay for laboratory.
 - h. Obtain required inspections or approvals of the building official. Inspection requests and notifications required by building code are responsibility of the Contractor.
 - i. Provide current welder certificates for each welder employed.
 - j. Provide fabrication and erection inspection and testing of welds in accordance with AWS D1.1/D1.1M, Chapter 6.
 - 1) Use prequalification of welding procedures in executing the Work.
 - k. Security and protection for samples and for testing and inspecting equipment at Project site.
- 9. Retesting/Reinspecting: Regardless of payment responsibility of the original tests or inspections, provide quality control services, including retesting and reinspecting, for construction that replaced Work failing to comply with the Contract Documents or Code requirements.
- C. Testing Agency Responsibilities: Cooperate with the Architect and the Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify the Architect and the Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

- 2. Determine the location 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 report, in duplicate, of each test, inspection, and similar qualitycontrol service through the Contractor.
- 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
- 6. Do not perform any duties of the Contractor.
- D. 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 inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.6 AUTHORITY AND DUTIES OF LABORATORY PERSONNEL

- A. A representative of the testing laboratory, who has reviewed and is familiar with the project and specifications, shall participate in preconstruction conferences. Representative shall coordinate material testing and inspection requirements with the Contractor and its subcontractors consistent with the planned construction schedule. The laboratory representative shall attend conferences required or requested to address quality control issues.
- B. Laboratory personnel shall inspect and test materials, assemblies, specimens, and Work performed, including design mixes, methods and techniques and report the progress to the Architect.
- C. If material or Work fails to meet requirements of Contract Documents, laboratory inspector shall notify the Contractor, the Architect, the Engineers, supplier or subcontractor providing or preparing the materials or Work being tested of such failure.
- D. Laboratory personnel shall not perform the Work of the Contractor or act as foremen or superintendents. Work will be inspected as it progresses, but failure to detect defective Work or materials shall not prevent later rejection when a defect is discovered.
- E. Laboratory personnel are not authorized to revoke, alter, relax, enlarge, or release the requirements of the Contract Documents or approve or accept portions of Work, except where approval is specifically specified in the Specifications.
- F. Comply with building code requirements for Special Inspections.

1.7 SUBMITTALS

- A. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality control services required by the Contract Documents. Coordinate and submit concurrently with the Contractor's construction schedule. Update as the Work progresses.
- B. 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.
 - 9. Unique characteristics of each quality control service.
- C. Test and Inspection Reports: Prepare and submit certified written reports specified. Include the following:
 - 1. Date of issue.

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- 2. Project title and number.
- 3. Name, address, and telephone number of testing agency.
- 4. Dates and locations of samples and tests or inspections.
- 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 inspecting.
- 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
- 12. Name and signature of laboratory inspector.
- 13. Recommendations on retesting and reinspecting.
- D. Submit copies of reports of each inspection and test to:
 - 1. The Owner, the Architect, and each Engineer or outside consultant regarding their particular phase of the project: One copy each.
 - 2. The Contractor: Two copies each.
- E. In addition to furnishing a written report, notify the Contractor verbally of uncorrected conditions or failures to comply with requirements of the Contract Documents, and immediately fax and email corresponding report to the Architect and the Engineer.
- F. At completion of each trade or branch of Work requiring inspecting and testing, submit a final certificate attesting to satisfactory completion of Work and full compliance with requirements of Contract Documents.
- G. Submit copies of test results sealed by a Registered Engineer to the Authorities Having Jurisdiction (AHJ), as required.

1.8 TESTING LABORATORY GUIDELINES AND PROCEDURES

- A. Technicians scheduled to perform specific testing services must be qualified to review and perform other services that overlap, i.e. earthwork, foundation inspections, rebar inspection, and concrete when scheduled concurrently at the site.
- B. Technician time for services performed will be reimbursed at a regular time rate. Compensation at the overtime rate will be considered for hours over eight hours spent at the site on a single day, field testing services performed on a Saturday or Sunday, and field services performed on a recognized holiday.
- C. There shall be a three hour minimum for each scheduled testing service. Vehicle charges will be included on a \$25.00 per trip basis.
- D. Cylinder pick up will be controlled by the technician performing test on a scheduled pick up day. If there are no testing services scheduled, the cylinder pick up fee is \$40.00 on week days and \$50.00 on weekends and holidays with no technician or vehicle charge.
- E. The Contractor shall bear the responsibility of scheduling the testing services. The Contractor and testing laboratory shall assume full responsibility to coordinate the testing services. Cancellations or failed test shall be reimbursable to the Owner by the responsible party for the cancellations or failure of a test or service.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

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- 1. Date test or inspection was conducted.
- 2. Description of the Work tested or inspected.
- 3. Date test or inspection results were transmitted to the Architect.
- 4. Identification of testing agency or special inspector conducting test or inspection
- 5. Deficiency log.
- B. Maintain log at site. Post changes and revisions as they occur. Provide access to test and inspection log for the Architect's reference during normal working hours.

3.2 TESTING AND INSPECTION SERVICES

- A. Testing services shall include, but not be limited to those specified below or which are necessary or required during course of construction to ascertain specification compliance and which may be deemed necessary by the Architect, the Engineer, or the Owner to ensure the quality of the Work.
- B. The Owner reserves the right to add to or delete any or all inspection and testing specified, excluding testing required by the applicable building codes.
- C. If conflicts arise between Drawings and Specifications, notify Architect immediately. The most stringent requirements shall dictate procedure.

3.3 REPAIR AND PROTECTION

- A. On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 73 29 - Cutting and Patching.
- B. Protect construction exposed by or for quality control service activities.
- C. Repair and protection are the Contractor's responsibility, regardless of the assignment of responsibility for quality control services.

END OF SECTION 01 45 23

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 RELATED SECTIONS

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: Requirements for temporary utilities, support facilities, and security and protection facilities, including but not limited to:
 - 1. Water service and distribution.
 - 2. Sanitary facilities, including toilets, wash facilities, and drinking water facilities.
 - 3. Heating and cooling facilities.
 - 4. Ventilation.
 - 5. Electric power service.
 - 6. Lighting.
 - 7. Waste disposal facilities.
 - 8. Storage and fabrication sheds.
 - 9. Lifts and hoists.
 - 10. Construction aids and miscellaneous services and facilities.
 - 11. Environmental protection.
 - 12. Pest control.
 - 13. Site enclosure fence.
 - 14. Security enclosure and lockup.
 - 15. Barricades, warning signs, and lights.
 - 16. Temporary partitions.
 - 17. Fire protection.
 - 18. Accessories necessary for a complete installation.

1.3 USE CHARGES

- A. Installation and removal of, and use charges for, temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service: Pay sewer service use charges for water used and sewer usage by all entities for construction operations.
- C. Electric Power Service: Pay electric power service use charges for electricity used by all entities for construction operations.

1.4 SUBMITTALS

- A. Site Plan: Show temporary facilities, utility connections, staging areas, and construction personnel parking areas.
- B. Moisture Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.
 - 1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
 - 2. Indicate procedures for discarding water damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water damaged work.
 - 3. Indicate sequencing of Work that requires water, such as sprayed fire resistive materials, plastering, and tile grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.

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C. Dust and HVAC Control Plan: Submit coordination drawing and narrative that indicates the dust and HVAC control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Accessible Temporary Egress: Comply with applicable provisions in ADA Standards, ICC A117.1-2009, and 2012 Texas Accessibility Standards (2012 TAS).
- B. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70-2017.
- C. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 **PROJECT CONDITIONS**

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for intended use.
- B. Chain Link Fencing: Minimum 2 inch (50 mm), 0.148 inch (3.8 mm) thick, galvanized steel, chain link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8 inch (60 mm) OD line posts and 2-7/8 inch (73 mm) OD corner and pull posts.
- C. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10 mils (0.25 mm) minimum thickness, with flame spread rating of 15 or less per ASTM E84.
- D. Dust Control Adhesive Surface Walk off Mats: Provide mats minimum 36 inches by 60 inches (914 mm by 1624 mm).
- E. Insulation: Unfaced mineral fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame spread and smoke developed indexes of 25 and 50, respectively.
- F. Lumber and Plywood: Comply with requirements in Section 06 10 00 Rough Carpentry.
- G. Gypsum Board: Minimum 1/2 inch (12.7 mm) thick by 48 inches (1219 mm) wide by maximum available lengths; Type X or Type C panels with tapered edges. Comply with Section 09 21 16 Gypsum Board Assemblies.
- H. Paint: Comply with requirements in Section 09 90 00 Painting and Coating.
- I. Tarpaulins: Fire resistive labeled with flame-spread rating of 15 or less.
- J. Water: Potable.

2.2 TEMPORARY FACILITIES

- A. Contractor's Field Offices:
 - 1. Field offices not required.
- B. Architect's Field Offices:
 - 1. Field offices not required.
- C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations. Store combustible materials apart from building.

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2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. Drinking Water: Containerized, tap dispenser, bottled water drinking water units, including paper cup supply. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 degrees F to 55 degrees F (7.2 degrees C to 12.7 degrees C).
- C. Electrical Outlets: Properly configured, NEMA polarized outlets to prevent insertion of 110V to 120V plugs into higher voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.
- D. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125V AC, 20 A rating, and lighting circuits may be non-metallic sheathed cable.
- E. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid propane gas or fuel oil heaters with individual space thermostatic control.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Locate facilities where they will serve project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
 - 1. Locate facilities to limit site disturbance as specified in Section 01 10 00 Summary.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. Install temporary service. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
 - 2. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel who handle materials that require wash up. Dispose of drainage properly. Supply cleaning compounds appropriate for each type of material handled. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel.
- E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- F. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.

- 1. Prior to commencing Work, isolate the HVAC system in area where Work is to be performed according to coordination drawings.
 - a. Disconnect supply and return ductwork in Work area from HVAC systems servicing occupied areas.
 - b. Maintain negative air pressure within Work area using HEPA equipped air filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.
- 2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust producing equipment. Isolate limited Work within occupied areas using portable dust containment devices.
- 3. Perform daily construction cleanup and final cleanup using approved, HEPA filter equipped vacuum equipment.
- G. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
 - 1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.
- H. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations. Install electric power service underground unless otherwise indicated.
 - 1. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.
 - a. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length voltage ratio.
 - b. Provide warning signs at power outlets other than 110 to 120V.
 - c. Provide metal conduit, tubing, or metallic cable for wiring exposed to possible damage. Provide rigid steel conduits for wiring exposed on grades, floors, decks, or traffic areas.
 - d. Provide metal conduit enclosures or boxes for wiring devices.
 - e. Provide 4 gang outlets, spaced so 100 foot (30 m) extension cord can reach each area for power hand tools and task lighting. Provide a separate 125V AC, 20A circuit for each outlet.
- I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Temporary offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines shall be of non-combustible construction according to ASTM E136. Comply with NFPA 241.
 - 1. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction

operations.

- 1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
- 2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to Section 31 20 00 Earth Moving.
- 3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
- 4. Delay installation of final course of permanent pavement until immediately before Substantial Completion.
- C. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- D. Parking: Provide temporary parking areas for construction personnel.
- E. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
- F. Waste Disposal Facilities: Provide waste collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 01 73 00 Execution.
- G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- H. Temporary Use of Permanent Elevators: Use of new elevators for construction traffic will be permitted, provided elevators are protected and finishes restored to new condition at time of Substantial Completion.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities to the satisfaction of Owner and Architect.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
 - 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree or plant protection zones.
 - 2. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
 - 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
 - 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

- E. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- F. Pest Control: Engage pest control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.
- G. Site Enclosure Fence: Before construction operations begin. provide site enclosure fence to prevent people and animals from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
- H. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each Work day.
- I. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- J. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- K. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.
- L. Temporary Partitions: Provide floor to ceiling dustproof partitions to limit dust and dirt migration and to separate occupied areas occupied from fumes and noise.
 - 1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire retardant treated plywood on construction operations side.
 - 2. Construct dustproof partitions with two layers of 6 mil (0.14 mm) polyethylene sheet on each side. Cover floor with two layers of 6 mil (0.14 mm) polyethylene sheet, extending sheets 18 inches (460 mm) up the sidewalls. Overlap and tape full length of joints. Cover floor with fire retardant treated plywood. Do not apply tape to finish floor surfaces.
 - a. Construct vestibule and airlock at each entrance through temporary partition with not less than 48 inches (1219 mm) between doors. Maintain water dampened foot mats in vestibule.
 - 3. Where fire resistance rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
 - 4. Insulate partitions to control noise transmission to occupied areas.
 - 5. Seal joints and perimeter. Equip partitions with gasketed, dustproof doors and security locks where openings are required.
 - 6. Protect air handling equipment.
 - 7. Provide walk off mats at each entrance through temporary partition.
- M. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
 - 1. Prohibit smoking in construction areas.
 - 2. Supervise welding operations, combustion type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire prevention and protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

Temporary Facilities and Controls 01 50 00 - 6 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture Protection Plan: Avoid trapping water in finished Work. Document visible signs of mold that may appear during construction.
- B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
 - 1. Protect porous materials from water damage.
 - 2. Protect stored and installed material from flowing or standing water.
 - 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 - 4. Remove standing water from decks.
 - 5. Keep deck openings covered or dammed.
- C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
 - 1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 - 2. Keep interior spaces reasonably clean and protected from water damage.
 - 3. Periodically collect and remove waste containing cellulose or other organic matter.
 - 4. Discard or replace water-damaged material.
 - 5. Do not install material that is wet.
 - 6. Discard, replace, or clean stored or installed material that begins to grow mold.
 - 7. Perform Work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.
- D. Controlled Condition Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
 - 1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
 - 2. Use permanent HVAC system to control humidity.
 - 3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits and moisture control.
 - a. Hygroscopic materials that may support mold growth, including wood and gypsum based products, which become wet during the course of construction and remain wet for 48 hours are considered defective and are to be removed and replaced.
 - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
 - c. Remove materials that cannot be completely restored to their manufactured moisture level within 48 hours.

3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24 hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion unless otherwise

required and approved by Owner and Architect.

- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 - At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 01 77 00 - Closeout Procedures.

END OF SECTION 01 50 00

SECTION 01 55 00 - VEHICULAR ACCESS AND PARKING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Access roads.
 - 2. Parking.
 - 3. Existing pavements and parking areas.
 - 4. Construction parking controls.
 - 5. Flag persons.
 - 6. Flares and lights.
 - 7. Haul routes.
 - 8. Traffic signs and signals.
 - 9. Maintenance.
 - 10. Removal, repair.
- B. Related Sections:
 - 1. Section 01 10 00 Summary: For access to site, work sequence, and occupancy.
 - 2. Section 01 50 00 Temporary Facilities and Controls: Post Mounted and Wall Mounted Traffic Control and Informational Signs.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Temporary Construction: Contractor's option.
- B. Materials for Permanent Construction: As specified in product specification sections, including earthwork, paving base, and topping.

2.2 SIGNS, SIGNALS, AND DEVICES

- A. Stock, Post-Mounted and Wall-Mounted Traffic Control and Informational Signs:1. Manufacturers:
- B. Traffic Cones and Drums, Flares and Lights: As approved by the Authorities Having Jurisdiction (AHJ).
- C. Flag Person Equipment: As required by the local Authorities Having Jurisdiction (AHJ).

PART 3 EXECUTION

3.1 ACCESS ROADS

- A. Use of designated, existing, on-site streets and driveways for construction traffic is permitted.
- B. Tracked vehicles not allowed on paved areas.
- C. Provide unimpeded access for emergency vehicles. Maintain 20 foot (6 m) width driveways with turning space between and around combustible materials.
- D. Provide and maintain access to fire hydrants free of obstructions.

3.2 PARKING

- A. Use of designated areas of existing parking facilities by construction personnel is permitted.
- B. When site space is not adequate, arrange for additional off-site parking.

3.3 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and the Owner's operations.
- B. Monitor parking of construction personnel's vehicles. Maintain vehicular access to and through parking areas.

Vehicular Access and Parking 01 55 00 - 1

C. Prevent parking on or adjacent to access roads or in non-designated areas.

3.4 FLAG PERSONS

A. Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.

3.5 FLARES AND LIGHTS

A. Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.6 HAUL ROUTES

- A. Confine construction traffic to designated haul routes.
- B. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

3.7 TRAFFIC SIGNS AND SIGNALS

- A. At approaches to site and on site, install at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.
- B. Relocate as work progresses, to maintain effective traffic control.

3.8 MAINTENANCE

- A. Maintain traffic and parking areas in a sound condition free of excavated material, construction equipment, products, mud, snow, and ice.
- B. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

3.9 REMOVAL, REPAIR

- A. Repair existing and new permanent facilities damaged by use, to original condition.
- B. Remove equipment and devices when no longer required.
- C. Repair damage caused by installation.
- D. Remove post settings to a depth of 2 feet (600 mm).

END OF SECTION 01 55 00

SECTION 01 56 00 - TEMPORARY BARRIERS AND ENCLOSURES

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 SECTION INCLUDES

- A. Temporary jobsite protection including the following:
 - 1. Temporary floor and wall protection.
 - 2. Door jamb protection.
 - 3. Small project floor and wall protection.
 - 4. Seaming tape for floor protection.
 - 5. Recyclable, portable jobsite trash containers.

1.3 RELATED SECTIONS

- A. Section 03 30 00 "Cast-In-Place Concrete".
- B. Division 08 Openings.
- C. Section 09 21 16 Gypsum Board Assemblies.
- D. Section 09 90 00 Painting and Coating.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 33 00 Submittal Procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.

1.5 QUALITY ASSURANCE

A. Manufacturer: Minimum Five (5) years' experience manufacturing similar products.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
- B. Handle materials to avoid damage.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Specifications are based on products of manufacturers named as the Basis of Design. Manufacturers listed whose products meet or exceed the specifications are approved for use on the Project. Other manufacturers must have a minimum of five (5) years experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered.
 - 1. Ram Board.
 - 2. Surface Shields.
 - 3. Trimaco, Inc.

2.2 TEMPORARY FLOOR AND WALL PROTECTION

- A. Temporary protection board shall comply with the following requirements, as necessary for the use.
 - 1. Materials:
 - a. Recycled and recyclable materials.

Temporary Barriers and Enclosures 01 56 00 - 1

- 2. Fold lines allowing corner, horizontal and vertical wall protection.
 - a. Wall guard fold lines at 4 inches (101 mm), 8 inches (203 mm) and 12 inches (305 mm) from edge of board.
- 3. Allow protected substrates and finishes to cure while being protected.
- 4. Protection against water, paint, mud, and more.
- B. Basis of Design:
 - 1. Products as manufactured by Ram Board.
 - a. Heavy Duty Temporary and Reusable Floor and Wall Protection: Ram Board Model #RB 38-100.
 - b. Pre-Taped Board: Ram Board Plus Model #RB PLUS 38-100.
 - c. Reusable Protection for Small Projects: Ram Board Home Edition Model #RBHE 36-50.
 - d. Painter's Board: Ram Board Painter's Board Model #20RB 35-50.

2.3 DOOR JAMB PROTECTION

- A. Door Jamb Protection: Heavy-duty flexible re-usable door jamb protection.
 - 1. Materials: Recycled and recyclable materials.
 - 2. Door Jamb Sizes: Fits 4 inches 9 inches (102 mm 229 mm).
 - 3. Basis of Design: Model # RBJP 60 or RBJP 36 Ram Jamb.

2.4 SEAMING AND EDGE TAPES FOR FLOOR PROTECTION

- A. Seaming Tape: Used to cover Ram Board seams.
 - 1. Backing: Unique kraft backing tears easily and creates an extremely durable, smooth finish.
 - 2. Basis of Design: Ram Board Model #RT 3-164.
- B. Vapor-Cure Tape: Used to cover Ram Board seams which prevents tape lines.
 - 1. Performance: Allows vapors and moisture to escape from concrete, glue down floors, stained floors, epoxy floors, refinished floors, vinyl composition tile, and most other floor types.
 - 2. Basis of Design: Ram Board Model #RB VCT 3-108
- C. Edge Tape: Used to secure Ram Board Temporary Floor Protection edges to flooring or wall surfaces.
 - 1. Performance: Easy Release, low tack tape for up to 14 days. Grips tightly to Ram Board while easy release on flooring surfaces up to 14 days.
 - 2. Basis of Design: Ram Board Model #RB ET 2.5-180.

2.5 PORTABLE JOBSITE TRASH CONTAINERS

- A. Portable Jobsite Trash Containers: Portable, reusable jobsite trash container.
 - 1. Fits Trash Bags: 42 gal 50 gal (159 to 189 L).
 - 2. Quick self-locking assembly, no tape required.
 - 3. Basis of Design: Ram Board Trash Box Model # RBTB 16-36.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates for compliance with requirements for installation. Proceed with installation or protection products only after unsatisfactory conditions have been corrected.
- B. Do not begin protection installation until substrates have been properly prepared.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

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3.2 INSTALLATION

A. Install protection products in accordance with manufacture's written instructions and approved submittals.

3.3 PROTECTION

A. Protection installed products may be left in place until completion of project or adjacent work.

END OF SECTION 01 56 00

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SECTION 01 60 00 - PRODUCT 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.

1.2 SUMMARY

- A. Section Includes: Administrative and procedural requirements for selection of products, including but not limited to:
 - 1. Product delivery, storage, and handling.
 - 2. Product warranties.
 - 3. Comparable products.

1.3 **DEFINITIONS**

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Basis of Design Product Specification.
 - 2. Product.
 - a. Comparable Product.
 - b. Named Products.
 - c. New Products.

1.4 SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify 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 specified requirements.
 - Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect shall 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. Form of Approval: As specified in Section 01 33 00 Submittal Procedures.
 - 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 Submittal Procedures. Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If 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 products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

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 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 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 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. Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 - 1. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 - 2. 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 Procedures.

PART 2 PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 - 1. Provide products complete with accessories, trim, finish, fasteners, and items needed for complete installation and indicated use and effect.
 - 2. 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.
 - 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

Product Requirements 01 60 00 - 2

- 4. Where products are accompanied by the term "as selected", Architect shall make selection.
- 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
- B. Product Selection Procedures:
 - 1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - 2. 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 Contractor's convenience will not be considered.
 - 3. 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 Contractor's convenience will not be considered.
 - 4. 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.
 - 5. 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 characteristics based on the product named. Comply with requirements for consideration of an unnamed product by one of the 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. Architect's decision will be final on whether a proposed product matches.
 - 1. If no product available within specified category matches and complies with specified requirements, comply with requirements of Section 01 25 13 Product Substitution Procedures for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "selected by Architect" or similar phrase, select a product that complies with requirements. Architect shall select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Architect shall consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
 - 1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 - 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - 3. Evidence that proposed product provides specified warranty.
 - 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 - 5. Samples, if requested.

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PART 3 EXECUTION NOT USED

END OF SECTION 01 60 00

Product Requirements 01 60 00 - 4

SECTION 01 61 16 - VOLATILE ORGANIC COMPOUND (VOC) CONTENT RESTRICTIONS

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. Requirements for Indoor-Emissions-Restricted products.
 - 2. Requirements for VOC-Content-Restricted products.
 - 3. Requirement for installer certification that they did not use any non-compliant products.
- B. Related Requirements:
 - 1. Section 01 33 00 Submittal Procedures: Submittal procedures.

1.3 INCLUDED PRODUCTS

- A. Indoor-Emissions-Restricted Products: All products in the following product categories, whether specified or not:
 - 1. Interior paints and coatings applied on site.
 - 2. Interior adhesives and sealants applied on site, including flooring adhesives.
 - 3. Flooring.
 - 4. Composite wood.
 - 5. Products making up wall and ceiling assemblies.
 - 6. Thermal and acoustical insulation.
 - 7. Free-standing furniture.
 - 8. Exterior applied products (for Healthcare and Schools projects only).
- B. VOC-Content-Restricted Products: All products in the following product categories, whether specified or not:
 - 1. Interior paints and coatings applied on site.
 - 2. Interior adhesives and sealants applied on site, including flooring adhesives.
 - 3. Wet-applied roofing and waterproofing.
- C. Inherently Non-Emitting Materials: Products composed wholly of minerals or metals, unless they include organic-based surface coatings, binders, or sealants; and specifically the following:
 - 1. Stone.
 - 2. Concrete.
 - 3. Clay brick.
 - 4. Metals that are plated, anodized, or powder-coated.
 - 5. Glass.
 - 6. Ceramics.
 - 7. Solid wood flooring that is unfinished and untreated.

1.4 SUBMITTALS

- A. Refer to Section 01 33 00 Submittal Procedures for submittal procedures.
- B. Product Data: For each VOC-restricted product used in the project, submit evidence of compliance.
- C. Installer Certifications Regarding Prohibited Content: Require each installer of any type of product (not just the products for which VOC restrictions are specified) to certify that either 1) no adhesives, joint sealants, paints, coatings, or composite wood or agrifiber products have been used in the installation of installer's products, or 2) that such products used comply with these requirements.

1.5 QUALITY ASSURANCE

- A. Indoor Emissions Standard and Test Method: CAL (CDPH SM), using Standard Private Office exposure scenario and the allowable concentrations specified in the method, and range of total VOC's after 14 days.
 - 1. Wet-Applied Products: State amount applied in mass per surface area.
 - 2. Paints and Coatings: Test tinted products, not just tinting bases.
 - 3. Evidence of Compliance: Acceptable types of evidence are the following;
 - a. Current UL (GGG) certification.
 - b. Current SCS (CPD) Floorscore certification.
 - c. Current SCS (CPD) Indoor Advantage Gold certification.
 - d. Current listing in CHPS (HPPD) as a low-emitting product.
 - e. Current CRI (GLP) certification.
 - f. Test report showing compliance and stating exposure scenario used.
 - 4. Product data submittal showing VOC content is NOT acceptable evidence.
 - 5. Manufacturer's certification without test report by independent agency is NOT acceptable evidence.
- B. VOC Content Test Method: 40 CFR 59, Subpart D (EPA Method 24), or ASTM D3960, unless otherwise indicated.
 - 1. Evidence of Compliance: Acceptable types of evidence are:
 - a. Report of laboratory testing performed in accordance with requirements.
 - b. Published product data showing compliance with requirements.
 - c. Certification by manufacturer that product complies with requirements.
- C. Composite Wood Emissions Standard: CARB (ATCM) for ultra-low emitting formaldehyde (ULEF) resins.
 - 1. Evidence of Compliance: Acceptable types of evidence are:
 - a. Current SCS "No Added Formaldehyde (NAF)" certification; www.scscertified.com.
 - b. Report of laboratory testing performed in accordance with requirements.
 - c. Published product data showing compliance with requirements.
 - d. Certification by manufacturer that product complies with requirements.
- D. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

PART 2 PRODUCTS

2.1 MATERIALS

- A. All Products: Comply with the most stringent of federal, State, and local requirements, or these specifications.
- B. Indoor-Emissions-Restricted Products: Comply with Indoor Emissions Standard and Test Method, except for:
 - 1. Composite Wood, Wood Fiber, and Wood Chip Products: Comply with Composite Wood Emissions Standard or contain no added formaldehyde resins.
- C. VOC-Content-Restricted Products: VOC content not greater than required by the following:
 - 1. Adhesives, Including Flooring Adhesives: SCAQMD 1168 Rule.
 - 2. Aerosol Adhesives: GreenSeal GS-36.
 - 3. Joint Sealants: SCAQMD 1168 Rule.
 - 4. Paints and Coatings: Each color; most stringent of the following:
 - a. SCAQMD 1113 Rule.

PART 3 EXECUTION

3.1 FIELD QUALITY CONTROL

- A. Owner reserves the right to reject non-compliant products, whether installed or not, and require their removal and replacement with compliant products at no extra cost to the Owner.
- B. Additional costs to restore indoor air quality due to installation of non-compliant products will be borne by the Contractor.

END OF SECTION 01 61 16

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SECTION 01 73 00 - EXECUTION

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 governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Installation of the Work.
 - 3. Coordination of Owner-installed products.
 - 4. Progress cleaning.
 - 5. Starting and adjusting.
 - 6. Protection of installed construction.

1.3 DEFINITIONS

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Cutting.
 - 2. Patching.

1.4 SUBMITTALS

- A. Certificates: Submit certificate signed by land surveyor or professional engineer certifying that location and elevation of improvements comply with requirements.
- B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- C. Certified Surveys: Submit two copies signed by land surveyor.
- D. Final Property Survey: Submit 10 copies showing the Work performed and record survey data.

1.5 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor legally qualified to practice in the State of Texas, who is experienced in providing land surveying services of the kind indicated.
- B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Comply with requirements specified in other Sections.
- B. In Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not warranted. Before beginning site Work, investigate and verify existence and location of underground utilities, mechanical and electrical systems, and construction affecting the Work.

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- 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water service piping; underground electrical services, and other utilities.
- 2. Furnish location data for Work related to the Work that must be performed by public utilities serving the site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - 1. Description of the Work.
 - 2. List of detrimental conditions, including substrates.
 - 3. List of unacceptable installation tolerances.
 - 4. Recommended corrections.
- D. Proceed with installation after correcting unsatisfactory conditions. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to Owner necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with Authorities Having Jurisdiction (AHJ).
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 01 31 00 - Project Management and Coordination.

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, promptly notify Architect.
- B. Engage a land surveyor or professional engineer to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as necessary to locate each element of Project.
 - 2. Establish limits on use of site.
 - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 4. Inform installers of lines and levels to which they must comply.

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- 5. Check the location, level and plumb, of every major element as the Work progresses.
- 6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
- 7. Close site surveys with an error of closure equal to or less than the standard established by Authorities Having Jurisdiction (AHJ).
- C. Record Log: Maintain a log of layout control Work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 INSTALLATION

- A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical Work plumb and make horizontal Work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
 - 4. Maintain minimum headroom clearance of 96 inches (2440 mm) in occupied spaces and 90 inches (2300 mm) in unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions ensuring the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for Work specified to be factory prepared and field installed. Check Shop Drawings of other Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. 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.
- I. Joints: Make joints of uniform width. Where joint locations in exposed Work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous. Materials containing asbestos and BCPs are prohibited.

3.5 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to site for Owner's construction personnel.

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- B. Coordination: Coordinate construction and operations of the Work with Work performed by Owner's construction personnel.
 - Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
 - 2. Preinstallation Conferences: Include Owner's construction personnel at pre-installation conferences covering portions of the Work that are to receive Owner's Work. Attend pre-installation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.6 PROGRESS CLEANING

- A. Clean site and Work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 degrees F (27 degrees C).
 - Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 a. Use containers intended for holding waste materials of type to be stored.
 - 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain site free of waste materials and debris.
- C. Work Areas: Clean areas where Work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed Work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 50 00 Temporary Facilities and Controls.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

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3.7 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with mechanical, plumbing, and electrical.
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with Section 01 40 00 Quality Requirements.

3.8 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion. Refer to Section 01 56 00 - Temporary Barriers and Enclosures.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 01 73 00

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SECTION 01 73 29 - CUTTING AND PATCHING

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: Procedural requirements for cutting and patching.

1.3 **DEFINITIONS**

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Cutting.
 - 2. Patching.

1.4 SUBMITTALS

- A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
 - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
 - 2. Changes to In Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 - 3. Products: List products used for patching and firms or entities that will perform patching Work.
 - 4. Dates: Indicate when cutting and patching will be performed.
 - 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
 - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

1.5 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
- B. Structural Elements: When cutting and patching structural elements, notify the Architect of locations and details of cutting and await directions from the Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
- C. Operational Elements: Do not cut and patch operating elements and related components that results in reducing the capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
 - 1. Primary operational systems and equipment.
 - 2. Fire separation assemblies.
 - 3. Air or smoke barriers.
 - 4. Fire suppression systems.
 - 5. Mechanical systems piping and ducts.
 - 6. Control systems.
 - 7. Communication systems.
 - 8. Fire detection and alarm systems.
 - 9. Conveying systems.
- 10. Electrical wiring systems.
- 11. Operating systems of special construction.
- D. Miscellaneous Elements: Do not cut and patch the following elements or related components that change the load bearing capacity, resulting in a reduction of capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
 - 1. Water, moisture, or vapor barriers.
 - 2. Membranes and flashings.
 - 3. Exterior curtain wall construction.
 - 4. Equipment supports.
 - 5. Piping, ductwork, vessels, and equipment.
 - 6. Noise and vibration control elements and systems.
 - 7. Sprayed fire resistive material.
- E. Visual Requirements: Do not cut and patch construction resulting in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
 - 1. If possible, retain original Installer or fabricator to cut and patch exposed Work. If possible, engage original Installer or fabricator. If original installer is not available, engage recognized, experienced, and specialized firm for the Work.
 - a. Processed concrete finishes.
 - b. Ornamental metal.
 - c. Matched veneer woodwork.
 - d. Preformed metal panels.
 - e. Window system.
 - f. Fluid applied flooring.
 - g. Wall covering.
 - h. HVAC enclosures, cabinets, or covers.
- F. Cutting and Patching Conference: Before proceeding, meet at site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.6 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Comply with specified requirements.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

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- 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Services: Where removal, relocation, or abandonment is necessary, bypass existing services before cutting to avoid interruption of services to occupied areas.

3.3 CUTTING AND PATCHING

- A. Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at earliest feasible time, and complete without delay.
 - 1. Cut existing construction to provide for installation of components or performance of construction, and subsequently patch as necessary to restore surfaces to an original condition.
 - 2. Cut in place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Temporary Support: Provide temporary support of Work to be cut.
- C. Protection: Protect in place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- D. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 01 10 00 Summary.
- E. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. Use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable earthwork specifications by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- F. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

- 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
- 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction to eliminate evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
- 3. Floors and Walls: Where walls or partitions are removed, extend one finished area into another, patch and repair surfaces in new space. Provide even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary to achieve uniform color and appearance.
- 4. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
- 5. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
- 6. Exterior Building Enclosure: Patch components and restore enclosure to a weathertight condition.

END OF SECTION 01 73 29

SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

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 the following:
 - 1. Salvaging non-hazardous waste.
 - 2. Disposing of non-hazardous waste.

1.3 **DEFINITIONS**

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Construction Waste.
 - 2. Demolition Waste.
 - 3. Disposal.
 - 4. Recycle.
 - 5. Salvage.
 - 6. Salvage and Reuse.

1.4 SUBMITTALS

- A. Waste Management Plan: Submit plan within 10 days of date established for commencement of the work.
- B. Waste Reduction Progress Reports:
 - 1. Concurrent with each Application for Payment, submit report.
 - 2. Include the following information:
 - a. Material category.
 - b. Generation point of waste.
 - c. Total quantity of waste in tons (tonnes).
 - d. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
 - e. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
 - f. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- C. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.5 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: Firm having minimum 10 years documented experience in specializing in waste management coordination.
- B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Waste Management Conference:
 - 1. Conduct conference at site. Review methods and procedures related to waste management including, but not limited to, the following:
 - a. Review and discuss waste management plan including responsibilities of waste management coordinator.
 - b. Review requirements for documenting quantities of each type of waste and its disposition.
 - c. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.

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- d. Review procedures for periodic waste collection and transportation to disposal facilities.
- e. Review waste management requirements for each trade.

1.6 PERFORMANCE REQUIREMENTS

- A. Conform to applicable regulations regarding Solid Waste Control.
- B. Practice efficient waste management in the use of materials in the course of the Work.

1.7 WASTE MANAGEMENT PLAN

- A. Develop a waste management plan and requirements.
 - 1. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis.
- B. Waste Identification: Indicate anticipated types and quantities of demolition site clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan:
 - 1. List each type of waste and whether it will be salvaged or recycled. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
 - a. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
 - b. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
 - c. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.
- D. Cost/Revenue Analysis:
 - 1. Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan.
 - 2. Include the following:
 - a. Total quantity of waste.
 - b. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
 - c. Total cost of disposal (with no waste management).
 - d. Revenue from salvaged materials.
 - e. Savings in hauling and tipping fees by donating materials.
 - f. Savings in hauling and tipping fees that are avoided.
 - g. Handling and transportation costs. Include cost of collection containers for each type of waste.
 - h. Net additional cost or net savings from waste management plan.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 PLAN IMPLEMENTATION

- A. Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract:
 - 1. Comply with operation, termination, and removal requirements in Section 01 50 00 Temporary Facilities and Controls.

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- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan.
- C. Training:
 - 1. Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work:
 - a. Distribute waste management plan to everyone concerned within three (3) days of submittal return.
 - b. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. Site Access and Temporary Controls:
 - 1. Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities:
 - a. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 - b. Comply with Section 01 50 00 Temporary Facilities and Controls for the control of dust and dirt, environmental protection, and noise control.
- E. Waste Management in Historic Zones or Areas: Hauling equipment and other materials shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, by 12 inches (300 mm) or more.

3.2 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Reuse in the work:
 - 1. Salvage items for reuse and handle:
 - a. Clean salvaged items.
 - b. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
 - c. Store items in a secure area until installation.
 - d. Protect items from damage during transport and storage.
 - e. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- B. Salvaged Items for Sale and Donation: Not permitted on Project site.
- C. Salvaged Items for Owner's Use:
 - 1. Salvage items for Owner's use and handle as follows:
 - a. Clean salvaged items.
 - b. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
 - c. Store items in a secure area until delivery to Owner.
 - d. Transport items to Owner's storage area designated by Owner.
 - e. Protect items from damage during transport and storage.
- D. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors, unless otherwise designated by Owner.
- E. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.
- F. Plumbing Fixtures: Separate by type and size.
- G. Lighting Fixtures: Separate lamps by type and protect from breakage.
- H. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

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3.3 DISPOSAL OF WASTE

- A. Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction:
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Remove waste materials and dispose of at designated spoil areas on Owner's property.

END OF SECTION 01 74 19

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 PRE-CLOSEOUT MEETING

A. Pre-Closeout Meeting: Schedule and convene Pre-Closeout Meeting with Owner and Architect in accordance with Section 01 31 00 - Project Management and Coordination.

1.3 SUBSTANTIAL COMPLETION

- A. Items listed in Supplementary Conditions, Article 9, Section 9.8 "Substantial Completion" and the following items shall be completed before Substantial Completion will be granted:
 - 1. Contractor's Completion List (Punch List): Submit a thorough list of items to be completed or corrected, along with a written request for Substantial Completion and for review of the Work or portion of the Work. The Architect's Project Representative, at their discretion, may attend and assist in the preparation of the Contractor's Punch List.
 - 2. Architect's Supplemental Punch List: The Architect, along with the Owner at the Owner's discretion, will inspect the Work utilizing the Contractor's prepared Punch List, noting completed items and incomplete items, and will prepare a supplemental list of items that have been omitted or incomplete items that were not previously noted.
 - 3. Operations and Maintenance Manuals: Submit as described in "Operations and Maintenance Manuals" article below.
 - 4. Final Cleaning: Provide final cleaning and adequate protection of installed construction as described in "Final Cleaning" and "Protecting Installed Construction" articles below.
 - 5. Starting of Systems: Start up equipment and systems as described in "Starting of Systems" article below.
 - 6. Testing and Balancing: Testing and balancing of systems must be performed and completed by Owner's forces, and the report submitted and accepted by Architect and Owner, as described in the Contract Documents. Make adjustments to equipment as required to achieve acceptance.
 - 7. Demonstrations: If required by individual specification sections or by Owner, provide demonstrations and instructions for use of equipment as described in "Demonstration and Instructions" article below.
- B. Date of Substantial Completion: Complete or correct items identified on Punch List and confirm that all items have been corrected prior to Architects re-inspection. Architect, along with the Owner, will re-inspect the corrected work to establish the Date of Substantial Completion. Incomplete items remaining will be appended to the Certificate of Substantial Completion (AIA G704). The Date of Substantial Completion represents day one (1) of the closeout period, and represents the date of commencement of the Contractors correctional period and all warranty periods as described and required by the Contract Documents, except as amended in the Certificate of Substantial Completion and elsewhere in the Contract Documents.
- C. Certificate of Substantial Completion: When the Work or designated portion thereof is substantially complete, Architect shall prepare the Certificate of Substantial Completion to be executed by the Owner and Contractor. Items on the appended Punch List shall be completed or corrected within the time limits established in the Certificate.

1.4 PUNCH LIST

A. A comprehensive list prepared by the Contractor prior to Substantial Completion, and attached thereto, to establish all items to be corrected, or limited items of work to be completed, if any. This list is intended to represent a limited number of items needing attention.

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- B. Punch lists shall be furnished to the Architect in Microsoft Excel and PDF formats. The punch list shall be in matrix form and shall include the following information for each punch list item:
 - 1. Room number or other suitable location identifier
 - 2. Description of the work
 - 3. Sub-contractor/trade sign-off that the work has been verified to be 100% complete and in accordance with the Contract Documents
 - 4. Sub-contractor/trade sign-off date
 - 5. Contractor sign-off that the work has been verified to be 100% complete and in accordance with the Contract Documents
 - 6. Contractor/trade sign-off date
 - 7. Architect consultant sign-off
 - 8. Architect consultant sign-off date
 - 9. If requested by Owner, provide two additional similar columns for their signoff.
 - 10. In the case of excessive repetition of the same item at various locations, the punch list may contain "general notes/items" that shall be applied to the entire project; and it shall be the responsibility of the Contractor to thoroughly examine the entire project and make corrective measures at all applicable locations.
- C. Should the Architect determine that the Contractor's punch list lacks sufficient detail or requires extensive supplementation, the punch list will be returned to the Contractor for reinspection and revision. The date of Substantial Completion will be delayed until the punch list submitted is a reasonable representation of the work to be done.
- D. A significantly large number of items to be completed or corrected will preclude Architect from issuing a Certificate of Substantial Completion. Owner and Architect will be the sole judge of what constitutes a significantly large number of items. It is anticipated that the detailed list of items of work to be completed or corrected at the Date of Substantial Completion will be no longer than five (5) typed pages.
- E. Contractor's superintendent shall participate in the preparation of Contractor's punch list that is submitted to Architect and Owner for supplementation. Upon receipt, Architect and Consultants shall perform a spot review to determine the adequacy and completeness of Contractor's punch list.
- F. Upon receipt of an acceptable Contractor's punch list, the Contractor's Superintendent shall accompany Architect, their Consultants and Owner (at their discretion) during their observation and the preparation of their supplements to the Contractor's punch list.
 - 1. Superintendent shall record or otherwise take note of all supplementary items.
 - 2. Architect shall endeavor to furnish to Contractor typed, hand-written, or recorded supplements to the punch list in a prompt manner; however, any delay in Contractor's receiving said supplements from Architect will not be cause for a claim for additional cost or extension of time as Contractor's Superintendent shall have been in attendance during the observations of Architect and their Consultants and will have been expected to take their own notes.

1.5 OPERATIONS AND MAINTENANCE MANUAL

- A. As a requirement for Substantial Completion, the final Operation and Maintenance Manual shall be submitted to, and reviewed and accepted by the Architect prior to issuance of the Certificate.
- B. Prepare 3-ring D-slant binder cover and spline with printed title "OPERATIONS AND MAINTENANCE MANUAL", title of project, and subject matter of binder when multiple binders are required.
- C. Submit one (1) copy of preliminary Operations and Maintenance Manuals to respective consultants (Civil, MEP, Structural, etc.) for review of conformance with contract requirements prior to submitting final to Architect. Allow time for proper review.

Closeout Procedures 01 77 00 - 2

- D. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- E. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- F. Contents: Prepare Table of Contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:
 - 1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, Subcontractors, and major equipment suppliers.
 - 2. Part 2: Operation and Maintenance, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Equipment start-up instructions
 - e. Operating instructions.
 - f. Maintenance instructions for equipment and systems.
 - g. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
 - 3. Part 3: Project documents and certificates, including the following:
 - a. Product data.
 - b. Air and water balance reports.
 - c. Photocopies of warranties, certificates and bonds. Submit originals with Closeout Documents as specified below.
- G. Submit one (1) final original and two (2) copies to Architect.
- H. Contractor shall provide a DVD, in PDF Format, the following documents after approval by the Architect, Consultants, and Owner: Closeout manual, Material Safety Data Sheet (MSDS) binder, Operations and Maintenance (O&M) Manuals, specifications, and approved submittals. Documents shall be hyper-linked to the Table of Contents.

1.6 PROJECT CLOSEOUT

- A. Final Payment will not be authorized by Architect until Architect finds the Work acceptable under the Contract Documents, subject to the completion and acceptance of the following requirements and other applicable contract requirements:
 - Close-out Documents: Provide bound closeout documents as described in "Closeout Documents" article below. Refer to Supplementary Conditions, Article 9, Section 9.10 "Final Completion and Final Payment" for additional information.
 - 2. Record Documents: Submit as described in "Project Record Documents" article below.
 - 3. Extra Materials: Provide extra stock, materials, and products as described in "extra Stock, Materials, and Maintenance Products" article below when required by individual specification sections.
 - 4. Locks: Make final changeover of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of changeover in security provisions.
 - 5. Temporary Facilities: Discontinue and remove temporary facilities from the site, along with mockups, construction aids, and similar elements.
 - 6. Warranties, Certificates and Bonds: Execute and assemble transferable warranty documents, certificates, and bonds from subcontractors, suppliers, and manufacturers as described in "Warranties, Certificates, and Bonds" article below.
 - 7. Final Examination and Acceptance by Architect: As described in "Final Examination" article below.

1.7 CLOSEOUT DOCUMENTS

- A. Coordinate the following items with the requirements of Section 00 73 00 Supplementary Conditions.
- B. Prepare 3-ring D-slant binder cover and spline with printed title "CLOSEOUT DOCUMENTS", title of project, and subject matter of binder when multiple binders are required. Submit one (1) original and two (2) copies.
- C. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- D. The close-out documents shall be neatly organized and easily useable as determined by the Architect and Owner. Separate Close-out Documents binders from Operations and Maintenance Manuals. Documents identified as "affidavit" shall be notarized.
- E. Contents: Prepare Table of Contents for each volume, with each item description identified, typed on white paper, in five (5) parts as follows:
 - 1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, Subcontractors, and major equipment suppliers. All Contractor's vendors/suppliers and subcontractors that provided materials or performed any work related to this project must be listed on this form. Submit Final List of Subcontractors on Section 00 40 12.
 - 2. Part 2: Closeout Documents and Affidavits, include the following:
 - a. AIA G706 Contractor's Affidavit of Payment of Debts and Claims;
 - b. AIA G706A Contractor's Affidavit of Release of Liens;
 - c. AIA G707 Consent of Surety to Final Payment;
 - 3. Part 3: Project documents and certificates, including the following:
 - a. Copy of Certificate of Substantial Completion (AIA G704);
 - b. Copy of All Permits;
 - c. Copy of Final Utility Bill or letter of transfer;
 - d. Copy of Certificate of Occupancy;
 - 4. Part 4: Warranties, Release of Liens, compile sequentially based on specification sections:
 - a. General Contractor's Warranty: Submit on company letterhead as described below. This Warranty shall state all sections of Work performed by Contractor's own forces, and warranty period for each section of Work;
 - b. Subcontractor's Release of Lien: Include contractor's, subcontractor's and direct material and equipment supplier's separate final releases. Submit on attached 01 77 01 - Closeout Form A - Subcontractor's Affidavit of Release of Lien.
 - c. Hazardous Material Certificate: Affidavits from Contractor, Subcontractors, and General Contractor's vendors or suppliers stating that no hazardous materials/products have been used or installed in this project. Submit on attached 01 77 02 - Closeout Form B - Subcontractor Hazardous Material Certificate.
 - d. Subcontractor's Warranty: Provide notarized Warranty stating all sections of Work performed by subcontractor and warranty period. Submit on attached 01 77 03 Closeout Form C Subcontractor Warranty.
 - e. Special / Extended Warranties; List and provide, notarized warranties requested by Owner, or required by or incorporated in the Contract Documents.
 - f. Spreadsheet depicting all items and materials that carry a warranty longer than one (1) year. Include information consisting of material/ supplier/ installer/ specification section/ length of warranty and contact information.
 - 5. Part 5: Receipts:
 - a. Extra Stock: Provide original receipts for delivery of "Extra Stock" items as described below. Receipts must be signed by an authorized Owner's representative;

- b. Keys: Provide original receipts for delivery of "Keys". Receipts must be signed by an authorized Owner's representative.
- c. Sign in sheets: provide signatures of attendees from all demonstrations.
- F. In addition to the three (3) required close-out binders listed above, provide Architect with one (1) separate binder for their records containing the following:
 - 1. Directory, listing names, addresses, and telephone numbers of Architect, Contractor, Subcontractors, and major equipment suppliers;
 - 2. All MSDS sheets for the project;
 - 3. All warranties from Contractor, subcontractors, direct suppliers, and manufacturers.
- G. Failure to complete and close-out project after substantial completion may result in liquidated damages being assessed to Contractor. Refer to Conditions of the Contract for additional requirements and liquidated damages.

1.8 FINAL CLEANING

- A. Execute final cleaning prior to final project inspection and acceptance.
- B. Clean interior and exterior glass, and surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces, mop hard floor surfaces.
- C. Remove smudges, marks, stains, fingerprints, soil, dirt, spots, dust, lint, and other foreign materials from finished and exposed surfaces
- D. Clean equipment and fixtures to sanitary condition with cleaning materials appropriate to surface and material being cleaned.
- E. Remove waste and surplus materials, rubbish, and temporary construction facilities from site.

1.9 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection as specified in Section 01 56 00 -Temporary Barriers and Enclosures and where specified in individual specification sections until Work is accepted by Architect and Owner.
- B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

1.10 STARTING OF SYSTEMS

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Architect and Owner 48 hours prior to start-up of each item.
- C. Verify each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.
- D. Verify tests, meter readings, and specified electrical characteristics agree with those required by equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of Contractor's personnel, and installer in accordance with manufacturers' instructions.
- G. When specified in individual specification sections or required by manufacturer, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

Closeout Procedures 01 77 00 - 5

Garni 215 Lab Renovation St. Mary's University April 25, 2025

H. When specified in individual specification sections or required by Owner or Architect, submit a written report in accordance with Section 01 33 00 - Submittal Procedures, that equipment or system has been properly installed and is functioning correctly.

1.11 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of products to Owner's personnel a minimum of 48 hours prior to date of Final Completion in accordance with Owner's requirements.
- B. Demonstrate Project equipment instructed by qualified manufacturer's representative who is knowledgeable about the Project and equipment.
- C. For equipment or systems requiring seasonal operation, perform demonstration for other season within six (6) months.
- D. Utilize maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel to explain all aspects of operation and maintenance.
- E. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment.
- F. Prepare and insert additional data in maintenance manuals when need for additional data becomes apparent during instruction.
- G. Review and verify proper star-up and operation of equipment prior to scheduling demonstrations with Owner.
- H. All demonstrations are to be documented by video and submitted to Owner in DVD format along with the close out documents. Contractor is responsible for all video and compilation onto DVD with linked menus.

1.12 PROJECT RECORD DOCUMENTS

- A. Project Record Documents, as described in Section 01 78 39, shall be submitted at Project Closeout. Final Payment will not be authorized by the Architect until final review and acceptance by Architect is achieved in accordance with the Owner's requirements.
- B. At Contractor's request, and with associated fee, Architect may provide electronic versions of the construction drawing and specification files for Contractor's use, subject to the terms and conditions of Architect's standard electronic document transfer agreement.
- C. Submit reproducible to respective consultants (Civil, Structural, MEP, etc.) for review. Consultant will mark-up corrections and return to Contractor for final revisions. Make final revisions prior to submitting to Architect.
 - 1. Provide Owner with one (1) set of Record Drawings on a non-rewritable CD in AutoCAD® latest release.
 - 2. Provide Owner with one (1) set of Record Drawings on a on a non-rewritable CD in PDF format.
 - 3. Label electronic CAD files and PDF files in the same manner as the sheets (example, A2.02 First Floor Area 'A', etc.)

1.13 EXTRA STOCK, MATERIALS, AND MAINTENANCE PRODUCTS

- A. Furnish extra stock, maintenance, and extra products in quantities specified in individual specification sections.
- B. Deliver to Project site or to Owner's Maintenance Department as directed by Owner; obtain signed receipt from Owner's Designated Representative (ODR) prior to final application for payment. Delivery of materials to, or obtaining receipt from anyone other than Owner's Designated Representative (ODR) may constitute breach of this requirement and may require delivery of additional materials at no cost to Owner if original materials are misplaced.
- C. Include signed receipts for delivery of extra stock and materials, including keys, with Closeout Documents.

Closeout Procedures 01 77 00 - 6

1.14 WARRANTIES, CERTIFICATES, AND BONDS

- A. Definitions:
 - 1. Standard Product Warranties: preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to Owner.
 - 2. Special Warranties: Written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide coverage of specific defects, or both.
- B. In accordance with the general warranty obligations under General Conditions, Article 3, Section 3.5 "Warranty" as amended by the Supplementary Conditions, Contractor's warranty shall be for a period of one (1) year following the date of Substantial Completion, hereinafter called the one-year warranty period. Contractor's one-year general warranty shall include all labor, material and delivery costs required to correct defective material and installation. This warranty shall not limit Owner's rights with respect to latent defects, gross mistakes, or fraud.
- C. Contractor's one-year warranty shall run concurrently with the one (1) year period for correction of Work required under General Conditions, Article 12, Section 12.2 "Correction of Work".
- D. No service charges or call out charges are allowed to investigate warranty claims.
- E. In addition to Contractor's one-year warranty, Special Warranties as described in individual specifications sections, shall extend the warranty period for the period specified without limitation in respect to other obligations which Contractor has under the Contract Documents.
- F. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of the warranty on the Work that incorporates the products, nor does it relieve the suppliers, manufacturers, and subcontractors required to countersign special warranties with Contractor.
- G. Warranty Requirements:
 - 1. When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
 - 2. When Work covered by a warranty has failed and been corrected by replacement or reconstruction, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
 - 3. Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. Contractor is responsible for the cost of replacing defective Work regardless of whether Owner has benefited from use of the Work through a portion of its anticipated useful service life.
 - 4. Written warranties made to Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which Owner can enforce such other duties, obligations, rights, or remedies.
 - 5. Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or designated portion of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.
- H. Compile copies of each required warranty properly executed by Contractor and the subcontractor, supplier, or manufacturer. Verify documents are in proper form, contain full information, and are notarized. Co-execute warranties, certificates and bonds when required and include signed warrantees with Closeout Documents submitted to Architect.

1.15 FINAL COMPLETION AND FINAL PAYMENT

A. Final Notice and Examination:

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- 1. When all items on the Punch List have been corrected, final cleaning has been completed, and installed work has been protected, submit written notice to Architect that the Work is ready for final examination.
- 2. Upon receipt of written notice that the Work is ready for final inspection and acceptance, Architect will make final examination.
- B. Final Change Order: When the Project Closeout items described above are successfully completed and the Work is found acceptable to Architect and Owner, a Final Change Order will be executed. This Change Order will include any Allowance adjustments as required by the Contract Documents.
- C. Final Application for Payment: When all of the above items are successfully complete, submit to the Architect a final Application for Payment and request for release of retainage.
- D. Release of Retainage: Release of retainage will not be authorized by Architect until Contractor completes all requirements for close-out to the satisfaction of Owner and Architect as described herein.

1.16 FINAL EXAMINATION

- A. Immediately prior to expiration of the one (1) year period for correction of the Work, the Contractor shall make an inspection of the work in the company of the Architect and Owner. Architect and the Owner shall be given not less than ten (10) days notice prior to the anticipated date of final examination.
- B. Where any portion of the work has proven to be defective and requires replacement, repair or adjustment, Contractor shall immediately provide materials and labor necessary to remedy such defective work and shall execute such work without delay until completed to the satisfaction of Architect and Owner, even if the date of completion of the corrective work may extend beyond the expiration date of the correction period.
- C. Contractor shall not be responsible for correction of work which has been damaged because of neglect or abuse by Owner nor the replacement of parts necessitated by normal wear in use.

PART 2 PRODUCTS

NOT USED PART 3 EXECUTION NOT USED

END OF SECTION 01 77 00

DRAFT AIA	Document G	704 [™] - 2000	
Certificate of Sul	bstantial Completio	n	
PROJECT: (Name and address)	PROJECT NUMBER: / CONTRACT FOR: CONTRACT DATE:	OWNER: 🖂 ARCHITECT: 🖾 CONTRACTOR: 🖾	
TO OWNER: (Name and address)	TO CONTRACTOR: (Name and address)	FIELD:	
PROJECT OR PORTION OF THE PROJEC	T DESIGNATED FOR PARTIAL OCCUPANCY	OR USE SHALL INCLUDE:	
The Work performed under this Contrac to be substantially complete. Substantial portion is sufficiently complete in accord its intended use. The date of Substantial by this Certificate, which is also the date as stated below:	t has been reviewed and found, to the Archi Completion is the stage in the progress of the lance with the Contract Documents so that the Completion of the Project or portion design of commencement of applicable warranties	tect's best knowledge, information and belief, he Work when the Work or designated the Owner can occupy or utilize the Work for ated above is the date of issuance established s required by the Contract Documents, except	
Warranty	Date of Commencement		
ARCHITECT	BY	DATE OF ISSUANCE	
A list of items to be completed or correc responsibility of the Contractor to compl writing, the date of commencement of w of Payment or the date of final payment.	ted is attached hereto. The failure to include ete all Work in accordance with the Contrac arranties for items on the attached list will b	e any items on such list does not alter the ct Documents. Unless otherwise agreed to in be the date of issuance of the final Certificate	
The Contractor will complete or correct Substantial Completion.	the Work on the list of items attached hereto	o within Zero (0) days from the above date of	
CONTRACTOR	ВҮ	DATE	
The Owner accepts the Work or designa (date).	ted portion as substantially complete and wi	ill assume full possession at (time) on	
OWNER	ВҮ	DATE	
The responsibilities of the Owner and Co shall be as follows: (Note: Owner's and Contractor's legal of	ontractor for security, maintenance, heat, uti and insurance counsel should determine and	ilities, damage to the Work and insurance d review insurance requirements and	

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coverage.)

DRAFT AIA Document G706™ - 1994

Contractor's Affidavit of Payment of Debts and Claims

PROJE	CT: (Name and address) NER: (Name and address)	ARCHITECT'S PROJECT CONTRACT FOR: CONTRACT DATED:	NUMBER:	OWNER: X ARCHITECT: X CONTRACTOR: X SURETY: X OTHER: X
STATE COUNT The undotherword for all h the perti- held res	OF: Y OF: dersigned hereby certifies that ise been satisfied for all mater known indebtedness and claim formance of the Contract refersponsible or encumbered.	t, except as listed below, ials and equipment furnis as against the Contractor renced above for which th	payment has been made in full shed, for all work, labor, and se for damages arising in any man he Owner or Owner's property i	and all obligations have prvices performed, and oner in connection with might in any way be
EXCEP [®]	TIONS:			
SUPPC 1. Indicate	DRTING DOCUMENTS ATT Consent of Surety to Final F Surety is involved, Consent required. AIA Document G Surety, may be used for this e Attachment	ACHED HERETO: Payment. Whenever of Surety is 707, Consent of purpose Yes X No	CONTRACTOR: (Name and	address)
			BY:	$\langle \frown \rangle \langle$
The fol hereto	lowing supporting documents if required by the Owner:	should be attached	(Signature of author	ized representative)
1.	Contractor's Release or Wai conditional upon receipt of	ver of Liens, final payment.	(Printed name and ti	itle)
2.	Separate Releases or Waive Subcontractors and material suppliers, to the extent requ accompanied by a list there	rs of Liens from and equipment ired by the Owner, of.	Subscribed and sworn to be	fore me on this date:
3.	Contractor's Affidavit of Re Document G706A).	lease of Liens (AIA	Notary Public: My Commission Expires:	

DRAFT AIA Document G706A[™] - 1994

Contractor's Affidavit of Release of Liens

PROJECT	[: (Name and address)	ARCHITECT'S PRO	IECT NUMBER:		OWNER:
	CONTRACT FOR			ARCHITECT: 🖂	
TO OWNE	ER: (Name and address)	CONTRACT FOR.	1		CONTRACTOR:
					SURETY:
					OTHER: 🖂
					1
STATE O COUNTY	F: OF:				
The unde	ersigned hereby certifies that to	the best of the unders	igned's knowle	edge, information a	nd belief, except as
listed bel	ow, the Releases or Waivers o	f Lien attached hereto	include the Co	ntractor, all Subcon	ntractors, all suppliers
encumbra	ances or the right to assert lien	s or encumbrances aga	inst any prope	rty of the Owner ar	rising in any manner
out of the	e performance of the Contract	referenced above.			
EXCEPTI	ONS:			Γ	<
SUPPOR	TING DOCUMENTS ATTA	CHED HERETO:	CONTRACT	OR: (Name and ad	(dress)
1.	Contractor's Release or Waive	r of Liens, al payment			
	conditional upon receipt of mi	ai payment.			
2.	Separate Releases or Waivers	of Liens from	BY:	(Signature of m	thewized
suppliers, to the extent require accompanied by a list thereof.	d by the Owner,	(Sign repre	(Signature of au representative)	inorizea	
			(Printed name a	nd title)	
			Subscribed	and sworn to befor	ra ma on this data:
			Subscribed and sworn to before me on this date:		
	Notary Public:				
			My Commission Expires:		

DRAFT AIA Document G707™ - 1994

Consent Of Surety to Final Payment

PROJECT: (Name and address)	ARCHITECT'S PROJECT NUMBER:	OWNER: 🔀	
	CONTRACT FOR:	ARCHITECT: 🔀	
		CONTRACTOR: 🖂	
IO OWNER: (Name and address)	CONTRACT DATED:	SURETY:	
		OTHER: 🔀	
In accordance with the provisions of the Cont above, the (Insert name and address of Surety)	tract between the Owner and the Contractor as indicated		
on bond of		, SURETY,	
(Insert name and address of Contractor)			
		. CONTRACTOR.	
hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor			
(Insert name and address of Owner)			
		OWNER	
as set forth in said Surety's bond.		, OwnER,	
IN WITNESS WHEREOF, the Surety has her (Insert in writing the month followed by the n	reunto set its hand on this date:		
ansers in wraing the monin jouowea by the h	umerie une une yeur.j		
	(Surety)		
	(Signature of authorized rep	(Signature of authorized representative)	
Attest:			
(Seal):	(Printed name and title)		

SECTION 01 77 01 - CLOSEOUT FORM A - SUBCONTRACTOR'S AFFIDAVIT OF RELEASE OF LIEN

SUBCONTRATOR'S AFFIDAVIT OF RELEASE OF LIEN

STATE OF TEXAS.

COUNTY OF _____.

KNOW ALL MEN BY THESE PRESENTS:

_____, being duly sworn, deposes and says: That they are the ______ of _____, the subcontractor who supplied, installed, and/or erected the Work described below, and that, they are duly authorized to make this Affidavit and Subcontractor Release.

PROJECT: GARNI 215 LAB RENOVATION

OWNER: ST. MARY'S UNIVERSITY

ARCHITECT: PBK ARCHITECTS, INC.

WORK PERFORMED: _____

SPECIFICATION SECTION(S):

That all Work required under the subject subcontractor of the subject construction project has been performed in accordance with the terms thereof, that all material men, subsubcontractors, mechanics, and laborers have been paid and satisfied in full and that there are no outstanding claims of any character arising out of the performance of said subcontractor which have not been paid and satisfied in full.

That to the best of his / her knowledge and belief, there are no unsatisfied claims for damages resulting from injury or death to any employees, sub-subcontractors, or the public at large arising out of the performance of said subcontract, or any suits or claims for any other damages of any kind, nature, or description which might constitute a lien upon the property of the Owner.

That they have received full payment of all sums due them for materials furnished and services rendered by the undersigned in connection with the performance of said subcontract and has and does hereby release the Owner and the Architect and his consultants and the Contractor from any and all claims of any character arising out of or in any way connected with performance of said subcontract.

Name of Subcontracor: _____

Attested By: _____ Title: _____

Jurat

State of Texas.

County of

Sworn to and subscribed before me on this _____ day of _____, 20__. Notary Public: _____ Seal:

END OF SECTION 01 77 01

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SECTION 01 77 02 - CLOSEOUT FORM B - SUBCONTRACTOR HAZARDOUS MATERIAL CERTIFICATE

SUBCONTRACTOR HAZARDOUS MATERIAL CERTIFICATE

THE STATE OF TEXAS.

COUNTY OF

PROJECT NAME: GARNI 215 LAB RENOVATION

OWNER: ST. MARY'S UNIVERSITY

ARCHITECT: PBK ARCHITECTS, INC.

KNOW ALL MEN BY THESE PRESENTS:

_____, being first duly sworn, deposes and says that he/she is the ______ of _____ of _____, the subcontractor / supplier wh of ______, the subcontractor / supplier who constructed or provided the section(s) of Work referenced above, and that they are duly authorized to certify to the best of their information, knowledge, and belief no asbestos, lead or PCB containing products have been incorporated into the project.

NAME OF SUBCONTRACTOR: _____

ATTESTED BY: ______ TITLE:

_____ JURAT

STATE OF TEXAS.

COUNTY OF _____.

Sworn to and subscribed before me on this _____ day of _____, 20__. Notary Public: _____ Seal:

END OF SECTION 01 77 02

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SECTION 01 77 03 - CLOSEOUT FORM C - SUBCONTRACTOR WARRANTY

SUBCONTRACTOR WARRANTY

STATE OF TEXAS.

COUNTY OF .

KNOW ALL MEN BY THESE PRESENTS:

, being first duly sworn, deposes and says:

That they are the Subcontractor (or the ______ of _____ of _____ the subcontractor), the subcontractor / supplier who supplied, installed, and / or erected the Work described below, and that, they are duly authorized to make this Subcontractor Warranty:

Project: Garni 215 Lab Renovation

Owner: St. Mary's University

Architect: PBK Architects, Inc.

Work Performed: _____

Specifcation Section(s):

The undersigned Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract are of good quality and new except where otherwise required or permitted by the Contract Documents, that the Work is free from defects not inherent in the quality required or permitted, and that the Work conforms with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. Subcontractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Subcontractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage.

In the event of failure of materials, products, or workmanship, during the specified warranty periods, the Subcontractor shall take appropriate measures to assure correction or replacement of the defective items, whether notified by the Contractor, Owner, or Architect.

The Subcontractor warrants the Work performed for a period of _____ months from the date of Substantial Completion, except as follows:

.. _

NAME OF SUBCONTRACTOR: _____

ATTESTED BY:		_ TITLE:	
J	URAT		
STATE OF TEXAS.			
COUNTY OF			
Sworn to and subscribed before me on this	day of	, 20	
Notary Public:	Seal:		
END OF SECT	ION 01 77 03		

Closeout Form C - Subcontractor Warranty 01 77 03 - 1

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SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

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 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.
 - 5. Product maintenance manuals.

1.3 DEFINITIONS

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Subsystem.
 - 2. System.

1.4 SUBMITTALS

- A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section:
 - 1. Architect will comment on whether content of operation and maintenance submittals is acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format:
 - 1. Submit operation and maintenance manuals in the following format:
 - a. Submit on digital media acceptable to Architect or by uploading to web-based project software site or by email to Architect. Enable reviewer comments on draft submittals.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal:
 - 1. Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments:
 - a. Correct or revise each manual to comply with Architect's and Commissioning Authority's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.
- E. Comply with 01 77 00 Closeout Procedures for schedule for submitting operation and maintenance documentation. Where applicable use 01 91 13 General Commissioning Requirements.

1.5 FORMAT OF OPERATION AND MAINTENANCE MANUALS

- A. Manuals, Electronic Files:
 - 1. Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required:

- a. Electronic files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
- b. File names and bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

1.6 REQUIREMENTS FOR MANUALS

- A. Organization of Manuals:
 - 1. 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:
 - a. Title page.
 - b. Table of contents.
 - c. Manual contents.
- B. Title Page:
 - 1. Include the following information:
 - a. Subject matter included in manual.
 - b. Name and address of Project.
 - c. Name and address of Owner.
 - d. Date of submittal.
 - e. Name and contact information for Contractor.
 - f. Name and contact information for Construction Manager.
 - g. Name and contact information for Architect.
 - h. Name and contact information for Commissioning Authority.
 - i. Names and contact information for major consultants to Architect that designed the systems contained in the manuals.
 - j. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents:
 - 1. List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual:
 - a. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- 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 the 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 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY MANUAL

- A. Operation and Maintenance Documentation Directory:
 - 1. Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals. List items and their location to facilitate ready access to desired information. Include the following:

- a. List of systems and subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- b. List of equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- c. Tables of contents: Include a table of contents for each emergency, operation, and maintenance manual.

1.8 EMERGENCY MANUALS

- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- B. Content:
 - 1. Organize manual into a separate section for each of the following:
 - a. Type of emergency.
 - b. Emergency instructions.
 - c. Emergency procedures.
- C. Type of Emergency:
 - 1. Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 - a. Flood.
 - b. Gas leak.
 - c. Water leak.
 - d. Power failure.
 - e. Water outage.
 - f. System, subsystem, or equipment failure.
 - g. Chemical release or spill.
- D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- E. Emergency Procedures:
 - 1. Include the following, as applicable:
 - a. Instructions on stopping.
 - b. Shutdown instructions for each type of emergency.
 - c. Operating instructions for conditions outside normal operating limits.
 - d. Required sequences for electric or electronic systems.
 - e. Special operating instructions and procedures.

1.9 SYSTEMS AND EQUIPMENT OPERATION MANUALS

- A. Systems and Equipment Operation Manual:
 - 1. Assemble a complete set of data indicating 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:
 - a. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 - b. 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:
 - 1. In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 - a. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.

- b. Performance and design criteria if Contractor has delegated design responsibility.
- c. Operating standards.
- d. Operating procedures.
- e. Operating logs.
- f. Wiring diagrams.
- g. Control diagrams.
- h. Piped system diagrams.
- i. Precautions against improper use.
- j. License requirements including inspection and renewal dates.
- C. Descriptions:
 - 1. Include the following:
 - a. Product name and model number. Use designations for products indicated on Contract Documents.
 - b. Manufacturer's name.
 - c. Equipment identification with serial number of each component.
 - d. Equipment function.
 - e. Operating characteristics.
 - f. Limiting conditions.
 - g. Performance curves.
 - h. Engineering data and tests.
 - i. Complete nomenclature and number of replacement parts.
- D. Operating Procedures:
 - 1. 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. Instructions on stopping.
 - f. Normal shutdown instructions.
 - g. Seasonal and weekend operating instructions.
 - h. Required sequences for electric or electronic systems.
 - i. Special operating instructions and procedures.
- E. Systems and Equipment Controls: Describe the sequence of operation and diagram controls as installed.
- F. Piped Systems: Diagram piping as installed and identify color coding where required for identification.

1.10 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Systems and Equipment Maintenance Manuals:
 - 1. Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information:
 - a. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 - b. 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: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project manual and Drawing or schedule designation or identifier where applicable.
- D. Manufacturers' Maintenance Documentation:
 - 1. Include the following information for each component part or piece of equipment:
 - a. Standard maintenance instructions and bulletins:
 - Include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one (1) item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable:
 - (a) Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
 - b. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - c. Identification and nomenclature of parts and components.
 - d. List of items recommended to be stocked as spare parts.
- E. Maintenance Procedures:
 - 1. Include the following information and items that detail essential maintenance procedures:
 - a. Test and inspection instructions.
 - b. Troubleshooting guide.
 - c. Precautions against improper maintenance.
 - d. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - e. Aligning, adjusting, and checking instructions.
 - f. Demonstration and training video recording, if available.
- F. Maintenance and Service Schedules:
 - 1. Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment:
 - a. Scheduled maintenance and service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - b. 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: Include copies of maintenance agreements with name and telephone number of service agent.
- I. Warranties and Bonds:
 - 1. Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds:
 - a. Include procedures to follow and required notifications for warranty claims.
- J. Drawings:
 - 1. Prepare Drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow

diagrams. Coordinate these Drawings with information contained in record Drawings to ensure correct illustration of completed installation:

a. Do not use original Project record documents as part of maintenance manuals.

1.11 PRODUCT MAINTENANCE MANUALS

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- C. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project manual and Drawing or schedule designation or identifier where applicable.
- D. Product Information:
 - 1. Include the following, as applicable:
 - a. Product name and model number.
 - b. Manufacturer's name.
 - c. Color, pattern, and texture.
 - d. Material and chemical composition.
 - e. Reordering information for specially manufactured products.
- E. Maintenance Procedures:
 - 1. Include manufacturer's written recommendations and 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. Schedule for routine cleaning and maintenance.
 - e. Repair instructions.
- F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- G. Warranties and Bonds:
 - 1. Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds:
 - a. Include procedures to follow and required notifications for warranty claims.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01 78 23

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

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 project record documents, including but not limited to:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings:
 - 1. Number of Copies: Submit one set of marked up record prints.
 - 2. Number of Copies: Submit copies of record Drawings:
 - a. Initial Submittal:
 - 1) Submit PDF electronic files of scanned record prints and one of file prints.
 - 2) Submit record digital data files and one sets of plots.
 - 3) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal:
 - 1) Submit PDF electronic files of scanned record prints and three sets of prints.
 - 2) Submit record digital data files and three sets of record digital data file plots.
 - 3) Plot each drawing file, whether or not changes and additional information were recorded.
- B. Record Specifications: Submit one paper copy and one annotated PDF electronic file of the Project Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit one paper copy and one annotated PDF electronic file and directory of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked up Product Data as a component of manual.
- D. Miscellaneous Record Submittals: Refer to the individual Specification Sections for miscellaneous record keeping requirements and submittals in connection with various construction activities. Submit one paper copy and annotated PDF electronic files and directories of each submittal.
- E. Reports: Submit written report monthly indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

1.4 PROJECT RECORD DOCUMENT PROCEDURES

- A. Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Architect's reference.
 - 1. Do not use As-Built Drawings and Specifications for Record Drawings and Specifications.
- B. Recording Procedures: Update drawings and specifications on daily bases to record actual conditions. Record information concurrently with construction progress. Do not conceal Work until required information is accurately recorded.

Project Record Documents 01 78 39 - 1

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- C. Store Record Documents and samples apart from as built documents used for construction.
 - 1. Label and file Record Documents and samples in accordance with section number listings in Table of Contents. Label each document PROJECT RECORD in neat, large, printed letters.
 - 2. Maintain Record Documents in clean, dry and legible condition.
 - 3. Make Record Documents and samples available for inspection upon request of Architect.

PART 2 PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked up paper copies of the Contract Drawings and Shop Drawings.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked up record prints. Show actual installation conditions where installation varies from that shown originally.
 - a. Give attention to information on concealed elements 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 shop drawings or archive 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 below first floor.
 - 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 Change Order or Construction Change Directive.
 - k. Changes made following Architect's written orders.
 - I. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 - 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Utilize personnel proficient at recording graphic information in production of marked up record prints.
 - 4. Mark record sets with erasable, red colored pencil. Use 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 prints with Architect. When authorized, prepare full set of corrected digital data files of the Contract Drawings:

- 1. Format: Same digital data software program, version, and operating system as the original Contract Drawings and annotated PDF electronic file with comment function enabled.
- 2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
- 3. Refer instances of uncertainty to Architect for resolution.
- 4. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
 - a. Refer to Section 01 33 00 Submittal Procedures for requirements related to use of Architect's digital data files.
 - b. Architect will provide data file layer information. Record markups in separate layers.
- C. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
 - 1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or modification.
 - 2. Consult Architect for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared record Drawings into record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
- D. Format: Identify and date each record Drawing; include the designation PROJECT RECORD DRAWING in a prominent location.
 - 1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. 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 the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
 - 4. Identification: As follows:
 - a. Project name.
 - b. Designation PROJECT RECORD DRAWINGS.
 - c. Name of Architect.
 - d. Name of Contractor.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications. Indicate actual product installation where installation varies from that indicated in Specifications.
 - 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 Change Orders, record Product Data, and record Drawings where applicable.
- B. Format: Submit record Specifications as annotated PDF electronic file and marked up paper copy of Specifications.

2.3 RECORD PRODUCT DATA

- A. 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 Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- B. Format: Submit record Product Data as annotated PDF electronic file. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

2.4 RECORD SAMPLES

A. Record Samples: Determine with Architect and Owner which submitted Samples are to be maintained as Record Samples. Maintain and mark one set to indicate date of review and approval by Architect; note any deviations or variations between reviewed sample and installed product or material.

2.5 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by the individual 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. Include the following:
 - 1. Reviewed shop drawings, product data, and samples.
 - 2. Field test reports.
 - 3. Inspection certificates and manufacturer's certificates.
 - 4. Inspections by Authorities Having Jurisdiction (AHJ) (AHJ).
 - 5. Documentation of foundation depths.
 - 6. Special measurements or adjustments.
 - 7. Tests and inspections.
 - 8. Surveys.
 - 9. Design mixes.
- B. Format: Submit miscellaneous record submittals as scanned PDF electronic file(s) of marked up miscellaneous record submittals. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

PART 3 EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

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. Demonstration of operation of systems, subsystems, and equipment.
 - 2. Training in operation and maintenance of systems, subsystems, and equipment.
 - 3. 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 utilizing 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 instructor.
- C. Attendance Record: For each training module, submit list of participants and length of instruction time.

1.4 CLOSEOUT SUBMITTALS

- A. Demonstration and Training Video Recordings: Submit two copies within seven 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 Contractor.
 - e. Date of video recording.
 - 2. At completion of training, submit complete training manual(s) for Owner's use.

1.5 QUALITY ASSURANCE

A. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 01 40 00 - Quality Requirements, experienced in operation and maintenance procedures and training.

1.6 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations.
- 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 has been reviewed and approved by Architect.
PART 2 PRODUCTS

3.

4.

2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an 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. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - 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. Operations manuals.
 - c. Maintenance manuals.
 - d. Project record documents.
 - e. Identification systems.
 - f. Warranties and bonds.
 - g. Maintenance service agreements and similar continuing commitments.
 - 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.
 - 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.
 - I. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
 - 5. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.

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- 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.

PART 3 EXECUTION

3.1 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 77 00 Closeout Procedures.
- B. Set up instructional equipment at instruction location.

3.2 INSTRUCTION

- A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Owner will furnish an instructor to describe Owner's operational philosophy.
 - 2. Owner will furnish Contractor with names and positions of participants.
- B. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with Owner through Program Manager with at least 10 days' advance notice.
- C. 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.

3.3 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
- B. Video Recording Format: Provide high-quality color video recordings with menu navigation in format acceptable to Owner.
- C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to show area of demonstration and training. Display continuous running time.

END OF SECTION 01 79 00

Demonstration and Training 01 79 00 - 3 This page intentionally left blank

SECTION 01 91 13 - GENERAL 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.

1.2 SUMMARY

- A. This Section establishes general and administrative requirements pertaining to Commissioning (Cx) of equipment, devices, and building systems on the project. Technical requirements for Commissioning of particular systems and components are established in the respective technical sections of this Project Manual.
- B. It is of primary concern that all operable systems installed in the Project perform in accordance with the Contract Documents, the Owner's Project Requirements (OPR), and the Basis of Design (BOD). During Commissioning, Contractor shall systematically demonstrate to Owner or Owner's Designated Representative (ODR) that operable systems have been installed and perform in strict accordance with the Contract Documents.
- C. Commissioning requires cooperation and involvement of all parties throughout the construction process. Contractor shall deliver a successful Commissioning process. Successful Commissioning requires that installation of all building systems complies with Contract Document requirements and that full operational check-out and necessary adjustments are performed prior to Substantial Completion with the exception of Deferred Tests approved in advance by Owner.
- D. Commissioning will encompass and coordinate traditionally separate functions of system documentation, installation checkout, System Verification Checklists and start-up, control system calibration and point-to-point checkout, testing, adjusting, and balancing, Functional Performance Tests, Integrated System Tests, Contractor demonstration to Owner, and training of Owner's personnel. This requires assembling all related documentation into one cohesive collection. Commissioning shall achieve the following specific objectives of the Contract Documents:
 - 1. Verify and document proper installation and intended performance of equipment, systems, and integrated systems.
 - 2. Ensure that Operating and Maintenance (O&M) and Commissioning documentation requirements are complete.
 - 3. Provide Owner with functional buildings and systems that meet the Contract Document requirements and the Owner's Project Requirements (OPR) at Substantial Completion.

1.3 **DEFINITIONS**

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Basis of Design (BOD).
 - 2. Commissioning (Cx).
 - 3. Commissioning Authority (CxA).
 - 4. Contract Documents.
 - 5. Control Point and Sensor Calibration Verification.
 - 6. Deferred Testing.
 - 7. Deficiency.
 - 8. Functional Performance Test (FPT).
 - 9. Functional Performance Testing Procedures.
 - 10. Integrated Systems Test (IST).
 - 11. Integrated Systems Testing Procedures.
 - 12. Operational Testing.
 - 13. Owner's Project Requirements (OPR).

- 14. Project Documents.
- 15. System Verification Checklist (SVC).
- 16. Start-up.
- 17. Training Plan.
- 18. Trending.

1.4 COMMISSIONING TEAM

- A. Owner shall appoint the following Members:
 - 1. Owner's Project Manager and any other designated representatives of Owner's staff.
 - 2. Commissioning Authority (CxA).
 - 3. Architect.
 - 4. Test, Adjust and Balance Firm (TAB) may be sub-contracted to the CxA.
- B. Contractor shall appoint the following Members:
 - 1. Individuals, each having authority to act on behalf of the entity they represent, explicitly organized to implement the Commissioning process through coordinated actions. At a minimum, Contractor shall designate a Commissioning Coordinator and each major sub-contractor (Mechanical, Electrical, Plumbing, Building Automation) shall have a dedicated representative.
 - 2. Vendor representatives (as needed) required for start-up, operational testing, Functional Performance Testing, Integrated Systems Testing, and Owner Training activities.
 - 3. Representatives of independent testing agencies (Test, Adjust and Balance, Electrical Testing Agency, etc.)

1.5 ROLES AND RESPONSIBILITIES

- A. Roles and responsibilities of Commissioning Team members related to the Commissioning Process are provided in this Section. Respective entities defined below shall fulfill the listed roles and responsibilities as contained herein. Specific technical roles and responsibilities are defined in other sections of the Project Specifications.
- B. Owner's Roles and Responsibilities:
 - 1. Provide guidance in development of the Owner's Project Requirements (OPR).
 - 2. Review Technical Specifications containing Commissioning requirements.
 - 3. Approve the Commissioning Scope of Work and schedule of Commissioning activities.
 - 4. Assign Owner's Designated Representative (ODR)(s) and schedule them to participate in Commissioning activities, including the following:
 - a. Commissioning Team meetings.
 - b. Review and approval of the Commissioning Plan, Training Plan, System Verification Checklist templates, Functional Performance Test Procedures, Integrated Systems Test Procedures, Deferred Testing Plans, Final Commissioning Process Report, Systems Manual, Measurement and Verification Plan and other Commissioning documents.
 - c. Attend Owner Training sessions in operation and maintenance of systems and equipment.
 - d. Observation of Contractor's demonstration of systems and equipment operation.
- C. Commissioning Authority's (CxA) Roles and Responsibilities:
 - 1. Prepare the Commissioning Plan with Owner's and Contractor's review and input.
 - 2. Periodically attend and/or review the proceedings of the regular Construction Meetings hosted by Contractor to understand the progress of construction activities on the project.
 - 3. Conduct and document Commissioning Team meetings including the Commissioning Kickoff Meeting.
 - 4. Perform site visits as necessary to observe component and system installations prior to energizing or start-up of equipment and systems.

- 5. Review and comment on product data and shop drawing submittals and coordination drawings applicable to systems being commissioned.
- 6. Following submittal review and approvals by the Architect's team, review the sequences of operation and coordinate with the Contractor and Architect's Team in order to prepare the Functional Performance Test Procedures and Integrated Systems Test procedures. Submit to Owner and Contractor for review and comment prior to facilitating FPTs and ISTs on the project.
- 7. Upon written notice that equipment or systems are ready for initial energizing or start-up, review the progress of the System Verification Checklist(s) for the respective systems and components and ensure that all requirements have been completed by Contractor to permit energizing or start-up in accordance with the Contract Documents; CxA shall issue written notice to Owner and Contractor that equipment is ready to energize or start-up. CxA will witness and ensure proper documentation is provided by Contractor for major equipment energizing and start-ups as executed by Contractor with appropriate notice as indicated herein.
- 8. Witness, verify, and document results of Functional Performance Tests and Integrated Systems Tests.
- 9. Coordinate resolution of deficiencies identified during site observations, equipment energizing or start-up, Functional Performance Testing, Integrated Systems Testing, Deferred Testing, and during the warranty period.
- 10. Review the Operating and Maintenance (O&M) documents to ensure that as-built information and correct data is included prior to Owner Training sessions; review final O&M submittal to ensure compliance with the requirements in the project documents and provide written comments to Owner.
- 11. Review Contractor's Training Plan and individual training agendas for compliance with the requirements in the Contract Documents. Recommend acceptance to Owner prior to Contractor scheduling training sessions with Owner. Review the attendance and content of the training sessions to ensure the requirements of the project documents are completed. Conduct a survey of Owner's personnel to evaluate the effectiveness of the Owner Training.
- 12. Compile the Final Commissioning Process Report and submit to Owner for review and approval.
- D. Architect's Roles and Responsibilities:
 - 1. Specify control sequences of operation within the Contract Documents that comply with the OPR and BOD.
 - 2. Incorporate Commissioning requirements into the Contract Documents if requested by Owner.
 - 3. Attend Commissioning Team meetings.
 - 4. Review the Commissioning Plan, System Verification Checklist templates, Functional Performance Test Procedures, Integrated Systems Test Procedures, Deferred Testing Plans, and other Commissioning documents as required by Owner or the Contract Documents.
 - 5. Review Contractor's Training Plan and provide comments to Owner.
 - 6. Approve technical requirements for correction of Deficiencies identified during Commissioning, Deferred Tests, and during the warranty period.
 - 7. Review Operating and Maintenance Manuals and provide comments to Owner.
- E. Contractor's Roles and Responsibilities:
 - 1. Contractor shall review and provide comments on documents produced by the Commissioning Authority, and shall accept the Commissioning Plan, System Verification Checklists, Functional Performance Test Procedures, and Integrated System Test Procedures as approved by Owner.

- 2. Provide an individual, subject to Owner's approval, experienced in construction and Commissioning of building systems to organize, schedule, conduct, and document the Contractor's responsibilities in the Commissioning process. Contractor shall assign this individual to act as the Contractor's Commissioning Coordinator. Contractor's Commissioning Coordinator may have additional duties such as MEP Coordinator, but not as Project Manager or Superintendent. Submit qualifications demonstrating the Commissioning Coordinator's technical expertise and experience to Owner for approval. In the event that Contractor chooses to subcontract its Commissioning obligations, then Contractor must submit the subcontractor's qualifications and personnel to Owner for Owner's approval.
- 3. Furnish and install systems that meet all requirements of the Contract Documents.
- 4. Ensure that Commissioning Process activities are incorporated into the Master Project Schedule. Contractor shall coordinate with CxA and Owner to determine the required activities, durations and predecessors.
- 5. Submit inspection requests, start-up requests and all supporting documentation in accordance with the Contract Documents, General Conditions, and Commissioning Plan.
- 6. Cooperate with Owner's Designated Representative (ODR)(s), provide access to work and provide adequate labor, resources, and time for Commissioning.
- 7. Furnish copies of all shop drawings and submittals, manufacturers' literature, maintenance information, and any other information required for the Commissioning process. Contractor must submit installation and checkout materials actually shipped inside equipment and actual field checkout sheet forms used by the factory or field technicians to Owner. This requirement does not supersede any additional requirements contained in the Contract Documents.
- 8. Schedule and conduct pre-installation meetings and pre-commissioning meetings with subcontractors and equipment suppliers related to Commissioning. Contractor must invite Architect, Owner, and CxA to attend the pre-installation meetings and pre-commissioning meetings.
- 9. Provide qualified personnel, including subcontractors as required, to fully perform the testing and operational demonstrations required by the Contract Documents and the Commissioning Plan, including any Deferred Testing or re-testing related to warranty work.
- 10. Correct deficiencies identified during any stage of the Commissioning process.
- 11. Coordinate with the CxA to develop the Training Plan and submit to Owner for approval. Provide training to Owner's personnel in accordance with the Contract Documents and the approved Training Plan. Coordinate with Owner to schedule training sessions and coordinate subcontractor/vendor participation in all training sessions.
- 12. Perform Deferred Testing and make necessary amendments to Operating and Maintenance Manuals and as-built drawings for applicable issues identified during the Deferred Testing.
- 13. Perform system maintenance during construction as specified and requested by Owner and send the maintenance records to Owner for Record.
- 14. Document the equipment as it arrives onsite to ensure that the submitted and received equipment is correct as it arrives onsite, including the completion of the system verification sections pertaining to the procurement process.

1.6 SYSTEMS TO BE COMMISSIONED

- A. The following systems shall be commissioned according to the process defined in this Section:
 1. Major HVAC Systems (100% including but not limited to the list below):
 - a. Air Handling Units.
 - b. Fan Coil Units.
 - c. Exhaust Fans.
 - d. Supply Fans.

- e. Pumps.
- f. Chillers.
- g. Boilers.
- 2. Terminal Units (10% Sampling).
- 3. Building Automation System.
- 4. Lighting Controls Occupancy Sensors (25% greater than 25 sensors installed, 100% less than 25 sensors installed).
- 5. Lighting Daylight Controls (100%).
- 6. Lighting Time Switch Controls (100%).
- 7. Normal and Emergency Power Systems.

PART 2 PRODUCTS

2.1 COMMISSIONING PLAN

- A. Document developed by CxA that provides structure, schedule, and coordination plan for Commissioning Process from Pre-construction phase through Occupancy Phase. Commissioning Plan shall describe the project and systems to be commissioned, Commissioning Process activities and deliverables, procedures to follow throughout the process, specific roles and responsibilities for each participant, and general description of testing and verification methods.
- B. Commissioning Plan shall comply with the Owner's Project Requirements (OPR).
- C. Commissioning Team shall review the Commissioning Plan prior to Pre-Commissioning Meeting and submit written comments or questions to CxA to be addressed in the meeting.
- D. Following Pre-Commissioning meeting, CxA shall incorporate all changes discussed and agreed upon in Pre-Commissioning meeting and submit Final Commissioning Plan to Commissioning Team for approval and acceptance.
- E. If changes to Commissioning Plan are needed during the Commissioning Process, CxA shall edit the plan and distribute to Commissioning Team for approval and acceptance.
- F. Contractor's acceptance shall constitute acceptance of all parties sub-contracted to Contractor. Contractor shall ensure that all sub-contractors and vendors agree and accept Commissioning Plan.

2.2 SYSTEM VERIFICATION CHECKLISTS

- A. System Verification Checklists (SVCs) are important to ensure that equipment and systems are connected and operational and that Functional Performance Testing proceeds without unnecessary delays. These checklists document inspections and procedures necessary to take a piece of equipment from a static state into an operating state. When combined, these checklists augment manufacturer's start-up checklists to provide a complete document from procurement to start of Functional Performance Testing.
- B. CxA shall develop System Verification Checklist templates for review by Cx Team. Contractor, appropriate Subcontractors, and Vendors shall support CxA in development of SVCs for each system and components by providing any necessary supporting documentation as requested by CxA and reviewing and commenting on the checklist templates in accordance with Project Specifications and Commissioning Plan.
- C. Once the checklist templates are reviewed and accepted, CxA will produce checklists for all equipment and components to be commissioned on the project utilizing an electronic commissioning database that is accessible via web portal or local field tool (i.e., iPad, tablet, laptop, etc.).
- D. CxA shall provide login access and training to Contractor and other members of Cx Team in use of electronic commissioning database.

- E. Contractor shall be responsible for completing required sections of System Verification Checklists utilizing electronic commissioning database and providing all supporting documentation via electronic transmittal to CxA. Additional requirements for completion of SVCs are included in this section and other technical sections of Specifications.
- F. Once equipment arrives on project site, Contractor or sub-contractors shall begin completing individual checklists and continue throughout installation process. Checklists are meant to be progressive and a tool for tracking progress.
- G. Once SVCs are electronically completed, CxA will review and approve checklists and supporting documentation and compile information to include in the Final Commissioning Process Report.

2.3 FUNCTIONAL PERFORMANCE TESTING PROCEDURES:

- A. Functional Performance Testing Procedures are to verify and document that equipment and systems on project individually perform in accordance with the requirements in the Contract Documents and meet Owner's Project Requirements.
- B. CxA shall develop specific script-type test procedures to verify and document proper operation of each piece of equipment and system. Contractor shall provide any supporting information to CxA that may be needed including, but not limited to, product submittals, O&M information, and sequences of operation. Once developed, CxA will issue to Cx Team for review and comment.
- C. Commissioning Team shall review Functional Performance Test procedures and submit written comments or questions to CxA. Contractor shall ensure that sub-contractors and any vendors that would be involved with Functional Performance Testing review the procedures and provide comments.
- D. CxA will coordinate with Cx Team to address any comments and produce final FPT procedures for acceptance by Cx Team. Contractor's acceptance shall constitute acceptance of all parties sub-contracted to Contractor.
- E. Contractor shall utilize the FPT procedures for any pre-testing activities prior to Functional Performance Testing.

2.4 INTEGRATED SYSTEMS TESTING PROCEDURES:

- A. Integrated Systems Testing Procedures are to verify and document that all the integrated equipment and systems on the project perform together in accordance with the requirements in the Contract Documents and meet the Owner's Project Requirements.
- B. CxA shall develop specific script-type test procedures to verify and document proper operation of integrated systems throughout facility. Contractor shall provide any supporting information to CxA that may be needed including, but not limited to, product submittals, O&M information, and sequences of operation. Once developed, CxA will issue to Cx Team for review and comment.
- C. Commissioning Team shall review Integrated Systems Testing procedures and submit written comments or questions to CxA. Contractor shall ensure that sub-contractors and any vendors that would be involved with Integrated Systems Testing review procedures and provide comments.
- D. CxA shall coordinate with Cx Team to address any comments and produce final IST procedures for acceptance by Cx Team. Contractor's acceptance shall constitute acceptance of all parties sub-contracted to Contractor.
- E. CxA shall also develop IST personnel matrix that will be utilized to track individual testing teams involved with IST. CxA will distribute the matrix to Cx Team so that Contractor and Owner can assign appropriate personnel to each team.
- F. CxA shall also host a coordination meeting prior to IST to review IST procedures, complete any final coordination, review safety procedures, and answer any questions.

- G. CxA estimates there will be two Integrated Systems Tests on project. Requirements for testing are included in the respective technical sections of Project Manual.
 - 1. First IST shall test _____
- H. IST procedures shall be utilized by Contractor for any pre-testing activities prior to official Integrated Systems Testing.

2.5 TRAINING PLAN

- A. Contractor, in coordination with Owner and CxA, shall develop Training Plan with project specific requirements for Owner Training, after reviewing the different systems to be installed and commissioned. Training Plan is to specifically communicate required content and training durations required by Owner based upon the type of equipment and Owner's past experience.
- B. Contractor shall review all individual technical sections of this Project Manual for specific training requirements.
- C. Contractor shall coordinate with Owner to ensure that the proposed training requirements meet Owner's needs and expectations.
- D. Contractor shall coordinate with sub-contractors and vendors to ensure Owner Training requirements can be achieved and gather any additional information or recommendations.
- E. Any changes to training requirements in this specification must follow contractual protocols.
- F. Training Plan shall include a list of systems and equipment for which training will be provided according to three-tiered training approach outlined in Project Manual.
- G. All training sessions shall have a syllabus indicating the following as a minimum in addition to any other specification requirements:
 - 1. Session Objectives.
 - 2. Proposed Instructor(s).
 - 3. Instructor Qualifications.
 - 4. Training Materials that will be provided.
 - 5. Location and durations of the various parts of the training session (i.e., Classroom, Onsite, etc.).
 - 6. Applicable specification sections and O&M Manual sections.
 - 7. Detailed outline of training session content.
- H. Contractor shall coordinate with CxA to organize systemic training sessions comparable to organization of Systems Manual.
- I. Owner training must be completed prior to the contractor obtaining substantial completion by Owner.

2.6 FINAL COMMISSIONING PROCESS REPORT

- A. CxA shall prepare Final Commissioning Process Report that will include the following:
 - 1. Executive Summary.
 - 2. Participants and Roles.
 - 3. Brief building description.
 - 4. Overview of commissioning and testing scope.
 - 5. General description of testing and verification methods.
 - 6. Appendices with supporting information, issues log, and communications.
- B. Contractor shall coordinate with CxA to provide any additional information that may be needed to complete Final Commissioning Process Report.
- C. Contractor shall resolve any outstanding commissioning items prior to CxA preparing Final Commissioning Report.
- D. CxA shall issue Final Commissioning Process Report to Cx Team for review. Owner shall approve Final Commissioning Process Report after any comments or discrepancies are

resolved by CxA.

PART 3 EXECUTION

3.1 PROJECT SCHEDULE

A. Contractor shall integrate all Commissioning activities into detailed Project Schedule. All parties will address scheduling problems and make necessary notifications in a timely manner to expedite Commissioning Process.

3.2 COMMISSIONING TEAM MEETINGS

- A. Upon obtaining Owner's approval of the Commissioning Plan, CxA shall coordinate with Cx Team to schedule, plan, and conduct a Pre-Commissioning Meeting with all parties involved in Commissioning process. Meeting should include major subcontractors, specialty manufacturers/suppliers, Architect, Test, Adjust, and Balance (TAB) Firm, Electrical Testing Agency, and Owner's Designated Representative (ODR)(s) as participants.
- B. Contractor shall prepare for Pre-Commissioning Meeting by supplying the following documents created by CxA to all applicable sub-contractors and vendors: Commissioning Plan, Example System Verification Checklists, Example Functional Performance Test Procedures, and Example Integrated Systems Test Procedures.
- C. CxA shall conduct Pre-Commissioning Meeting and review all aspects of Commissioning Plan and applicable specifications.
- D. Commissioning Plan shall be reviewed with all attendees and scope of work discussed. Contractor should be prepared to distribute copies of pertinent sections to subcontractors involved in Commissioning process.
- E. Final outcome of the meeting shall be an understanding of commissioning process, roles and responsibilities, and consensus acceptance of Commissioning Plan by Cx Team.
- F. Contractor may request additional meetings with CxA and individual sub-contractors to clarify roles, responsibilities, and procedures as needed.

3.3 TEST EQUIPMENT

- A. Contractor shall provide all specialized tools, test equipment, and instruments required to execute start-up, checkout, and testing of equipment.
- B. All specialized tools, test equipment and instruments required to execute start-up, checkout, and testing of equipment shall be of sufficient quality and accuracy to test and/or measure system performance within specified tolerances. A testing laboratory must have calibrated test equipment within the previous twelve (12) months. Calibration shall be NIST traceable. Contractor must calibrate test equipment and instruments according to manufacturer's recommended intervals and whenever the test equipment is dropped or damaged. Calibration tags must be affixed to the test equipment or certificates readily available.

3.4 REPORTING

- A. Beginning at the procurement stage for equipment included in Cx scope, Contractor shall communicate at least monthly with all members of the Commissioning Team, keeping them apprised of construction progress and scheduling changes.
- B. Contractor shall submit Deficiency reports to Owner within five (5) days of the deficiency occurrence. This includes responses to items noted by the Commissioning Authority.

3.5 DEFICIENCY RESOLUTION

- A. CxA shall document any issues noted during observation or testing activities in the Commissioning Issues Log (CxIL). CxIL shall be distributed electronically to Cx Team at regular intervals.
- B. Contractor shall respond in writing to CxA within 10 days to all new CxIL items regardless of the disposition. This response does not constitute a request for re-verification, only an

acknowledgement of the outstanding item. Contractor should utilize CxIL responses to update Cx Team on the progress of deficiency resolution.

- C. Contractor shall respond to CxA and Owner indicating CxIL items that are completed and ready for CxA to verify completion.
- D. If any item indicated complete by Contractor is found to be incomplete by CxA upon reverification, Contractor is responsible for all costs and additional compensation resulting from incomplete Cx Issues Log items.

3.6 REQUEST FOR ENERGIZING / START-UP OF EQUIPMENT

- A. Owner and/or Owner's Designated Representative (ODR) may install lockout devices on equipment in addition to Contractor's lockout / tagout devices once permanent power is connected to facility. This lock would be removed once proper start-up notification is received by Owner and/or CxA, and CxA has reviewed the appropriate SVCs and supporting documentation to verify equipment is ready for energizing and/or start-up.
- B. These requirements do not supersede any additional requirements noted elsewhere in the Contract Documents or as required by Authorities Having Jurisdiction (AHJ).
- C. Contractor shall notify Owner and CxA in writing to request initial energizing and/or start-up of equipment and systems at least 72 hours (not including weekends or holidays) prior to scheduled start-up.
- D. Contractor shall complete applicable sections of System Verification Checklist(s) evidencing Contractor's thorough inspection of system and readiness for start-up activities as required by Contract Documents and the Commissioning Plan. Contractor shall submit required supporting documentation to Owner and/or CxA, including but not limited to, factory testing reports, alignment reports, electrical testing reports and any other documentation required by the Project Documents prior to energizing and/or start-up.
- E. CxA shall review SVCs and supporting documentation within the 72 hour notice period and confirm in writing that the systems and equipment are approved to proceed with energizing and start-up.
- F. CxA and/or Owner may witness equipment energizing and/or start-up at scheduled time, but witness is not required, unless noted elsewhere in the Specifications, as long as written approval is received as noted herein.
- G. Contractor shall perform Start-up under supervision of the responsible manufacturer's representative in accordance with manufacturer's instructions and Contract Document requirements.
- H. Contractor shall complete all required factory start-up documentation and applicable items in System Verification Checklists, prior to startup, to ensure compliance with the requirements in Contract Documents.

3.7 OPERATIONAL TESTING

- A. Once the appropriate start-up activities are completed, Contractor shall complete all necessary operational testing requirements included in the Project Documents prior to Functional Performance Testing. Specific requirements for systems and equipment are included in other technical sections of the Specifications.
- B. Contractor shall complete all operational testing items in the System Verification Checklist and submit all supporting documentation to Owner and/or CxA for review.
- C. Contractor and manufacturer's representatives shall supervise and coordinate adjustments and balancing of all devices and systems for proper operation prior to requesting a Functional Performance Test(s).
- D. Contractor shall clearly list outstanding items or System Verification Checklist items not completed successfully. Contractor shall obtain from Subcontractor or vendor completed forms

documenting any outstanding deficiencies within five (5) days of completion of energizing and/or start-up activities.

- E. Contractor shall review completed deficiencies to determine if outstanding items prevent execution of the Functional Performance Tests and shall issue any necessary responses to Owner and/or Commissioning Authority.
- F. Contractor shall notify Owner and CxA in writing to request Functional Performance Testing of equipment and systems at least 72 hours (not including weekends or holidays) prior to scheduled activities. Owner may require Contractor to reschedule Functional Performance Testing to ensure availability of Owner's Designated Representative (ODR)(s) as needed.
- G. CxA shall review SVCs and supporting documentation within 72 hour notice period and confirm in writing that systems and equipment are approved to proceed with Functional Performance Testing.
- H. If any item indicated complete by Contractor is found to be incomplete by CxA, upon reverification, Contractor is responsible for all costs and additional compensation resulting from incomplete System Verification Checklist items.

3.8 CONTROL POINT AND SENSOR CALIBRATION VERIFICATION

- A. Automation systems installed on project must be fully verified for point integrity and sensor calibration prior to Functional Performance Testing. Additional requirements for this verification are listed in other technical sections of the Specifications.
- B. Contractor shall verify these points according to the requirements in the project documents as part of start-up and operational testing of systems.
- C. TAB contractor shall independently verify each sensor and point and document the results to be included in the Final TAB Report.
- D. CxA will witness, at their discretion, this verification and/or independently verify and document results to be included in Final Commissioning Process Report.
- E. These activities must be completed prior to Contractor requesting Functional Performance Testing as indicated herein.

3.9 FUNCTIONAL PERFORMANCE TESTING

- A. Functional Performance Testing is to demonstrate that each system operates according to the requirements in the Project Documents and meets the OPR and BOD.
- B. Contractor shall operate, or cause to be operated, each system, device, or equipment item, both intermittently and continuously, for a duration period as indicated in the Specification Section(s) for each item and/or in accordance with Contract Documents, Commissioning Plan and applicable Functional Performance Testing procedures.
- C. Contractor shall operate each component device and each building system to the full extent of its capability, from minimum to maximum, and under automatic control and manual control.
- D. CxA and members of Cx Team, including Owner's personnel, may observe Functional Performance Testing of equipment components and systems. CxA shall facilitate the Functional Performance Testing activities according to the accepted FPT procedures and record results of all testing activities.
- E. CxA shall record any deficiencies noted during the testing in CxIL. If significant deficiencies exist, the Owner and/or CxA may request that the testing activities be terminated and rescheduled after proper verification by Contractor. Contractor is responsible for all costs and additional compensation resulting from deficiencies and incomplete systems noted during scheduled Functional Performance Testing.
- F. All Functional Performance Testing of Integrated Systems must be completed in accordance with Project Documents and Commissioning Plan prior to Contractor scheduling the Integrated Systems Testing activities.

3.10 INTEGRATED SYSTEMS TESTING

- A. The objective of Integrated Systems Testing is to demonstrate that each integrated system operates jointly and/or independently of other systems according to the requirements in the Contract Documents.
- B. Contractor shall operate each system, jointly and independently of other systems, through selected modes of operation (fire alarm integration with HVAC, emergency power modes, equipment failures among related systems, etc.) according to accepted Integrated Systems Testing procedures developed by CxA. CxA shall facilitate and document testing, organizing appropriate testing teams and providing sufficient instruction to all participants to conduct efficient and effective testing activities.
- C. Integrated Systems Testing typically involves multiple teams with representation from CxA, Owner, and Contractor. Contractor shall provide any needed communication equipment (i.e., radios) or make available any centralized intercom or paging system for communication with all testing groups.
- D. Contractor shall provide no less than 7 days (not including weekends or holidays) notice when requesting to conduct the Integrated Systems Testing. All personnel must be assigned to Personnel Matrix by CxA and a coordination meeting held within the 7 day period as prescribed elsewhere in this Section.
- E. Contractor conducts Integrated Systems Testing after all applicable Functional Performance Testing is satisfactorily completed and approved by Owner and/or CxA.
- F. CxA shall record any deficiencies noted during testing in CxIL. If significant deficiencies exist, Owner and/or CxA may request that testing activities be terminated and re-scheduled after proper verification by Contractor. Contractor is responsible for all costs and additional compensation resulting from deficiencies and incomplete systems noted during scheduled Integrated Systems Testing.

3.11 DEMONSTRATION AND OWNER TRAINING

- A. Contractor, in coordination with Owner and CxA, shall develop Training Plan with project specific requirements for Owner Training as required throughout various sections of the Specifications.
- B. Specific requirements for scheduling and conducting Owner Training are included in other sections of this Project Manual.
- C. Owner Training activities shall not occur until Training Plan is approved by Owner and Contractor has submitted all O&M information for review and use during the training sessions.
- D. Contractor shall notify the CxA of all training sessions. Contractor shall record training session attendance and Owner shall ensure appropriate personnel are in attendance.
- E. CxA shall ensure the content of the Owner Training sessions meets the requirements in the Contract Documents.
- F. CxA may conduct surveys of Owner's personnel to gauge effectiveness of Owner training sessions. If unfavorable surveys are received by Owner's personnel indicating unsatisfactory training, Owner reserves the right to require Contractor to re-train in those specific areas of non-conformance until requirements in the Contract Documents are satisfactorily completed.
- G. Owner training must be completed prior to the contractor obtaining substantial completion by the Owner.

3.12 DEFERRED / SEASONAL TESTING

A. All Construction phase requirements of the Commissioning Process must be completed prior to Substantial Completion or as indicated elsewhere in this Specification.

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- B. If any testing or other requirements cannot be completed prior to Substantial Completion due to the building structure, required occupancy condition, or other condition, performance of such test may be delayed to later in the warranty period, upon Owner approval. Contractor shall reschedule testing according to the protocols described in this section and any other operational protocols prescribed by Owner.
- C. Contractor shall complete all outstanding commissioning requirements as part of this Contract during the warranty period. Contractor shall schedule all activities with Owner and/or CxA.
- D. CxA shall document any deferred testing activities and ensure appropriate Commissioning documents are updated. Contractor shall provide any additional documentation needed by CxA to complete these requirements.

END OF SECTION 01 91 13

SECTION 02 41 00 - DEMOLITION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications, and the Sections included under Division 01 General Requirements and References, are included as a part of this Section as though bound herein.

1.2 SUMMARY

- A. Section Includes:
 - 1. Furnishing all labor, materials, and equipment necessary for demolition, dismantling, cutting, and alterations as indicated, specified, and required for completion of the Contract, as applicable. Includes items such as the following:
 - a. Salvage of building elements for reuse or return to the Owner.
 - b. Selective demolition of building elements for alteration purposes.

1.3 RELATED REQUIREMENTS

- A. Section 00 31 00 Available Project Information: Existing building survey conducted by Owner; information about known hazardous materials.
- B. Section 01 10 00 Summary: Limitations on Contractor's use of site and premises.
- C. Section 01 10 00 Summary: Sequencing and staging requirements.
- D. Section 01 10 00 Summary: Description of items to be removed by Owner.
- E. Section 01 10 00 Summary: Description of items to be salvaged or removed for re-use by Contractor.
- F. Section 01 50 00 Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
- G. Section 01 57 13 Temporary Erosion and Sediment Control.
- H. Section 01 60 00 Product Requirements: Handling and storage of items removed for salvage and relocation.
- I. Section 01 73 00 Execution: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.
- J. Section 01 74 19 Construction Waste Management and Disposal: Limitations on disposal of removed materials; requirements for recycling.

1.4 REFERENCE STANDARDS

- A. 29 CFR 1926 Safety and Health Regulations for Construction; Current Edition.
- B. NFPA 241 Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

1.5 SUBMITTALS

- A. Refer to Section 01 33 00 Submittal Procedures, for submittal procedures.
- B. Site Plan: Showing:
 - 1. Vegetation to be protected.
 - 2. Areas for temporary construction and field offices.
 - 3. Areas for temporary and permanent placement of removed materials.
- C. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
 - 1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences.

- 2. Identify demolition firm and submit qualifications.
- 3. Include a summary of safety procedures.
- D. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.6 EXISTING CONDITIONS

- A. The Contractor shall acquaint himself with all site conditions. If unknown active utilities are encountered during work, notify Architect promptly for instructions. Failure to notify will make the Contractor liable for damage to these utilities arising from the Contractor's operations subsequent to discovery of such unknown active utilities.
- B. Conduct demolition to minimize interference with adjacent structures or items to remain. Maintain protected egress and access at all times.

1.7 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: Company specializing in the type of work required.
 - 1. Minimum of 5 years of documented experience.

PART 2 PRODUCTS

2.1 DESCRIPTION

- A. Regulatory Requirements:
 - 1. Code Standards:
 - a. Refer to specification Section 01 41 00 Regulatory Requirements for code requirements and code standards applicable to all materials and work necessary to complete the scope of work.

PART 3 EXECUTION

3.1 EXISTING CONDITIONS

- A. The Contractor shall acquaint himself with all site conditions. If unknown active utilities are encountered during Work, notify the Architect promptly for instructions. Failure to notify will make The Contractor liable for damage to these utilities arising from the Contractor's operations subsequent to discovery of such unknown active utilities.
- B. Conduct demolition to minimize interference with adjacent structures or items to remain. Maintain protected egress and access at all times.

3.2 SCOPE

A. As indicated on Drawings.

3.3 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. The Owner has first right of refusal on all salvaged items. Coordiante with the Owner prior to demolition.
- B. Comply with other requirements specified in Section 01 73 00 Execution.
- C. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Comply with applicable requirements of NFPA 241.
 - 3. Use of explosives is not permitted.
 - 4. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 5. Provide, erect, and maintain temporary barriers and security devices.
 - 6. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.

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- 7. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
- 8. Do not close or obstruct roadways or sidewalks without permit.
- 9. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
- 10. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- D. Do not begin removal until receipt of notification to proceed from the Owner.
- E. Do not begin removal until built elements to be salvaged or relocated have been removed.
- F. Do not begin removal until vegetation to be relocated has been removed and specified measures have been taken to protect vegetation to remain.
- G. Protect existing structures and other elements that are not to be removed.
 - 1. Provide bracing and shoring.
 - 2. Prevent movement or settlement of adjacent structures.
 - 3. Stop work immediately if adjacent structures appear to be in danger.
- H. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
- I. If hazardous materials are discovered during removal operations, stop work and notify the Architect and the Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.
 - 1. Hazardous Materials: Comply with 29 CFR 1926 and state and local regulations.

3.4 PROTECTION

- A. Adequate protection measures shall be provided to protect workmen and passers-by on and off the site. Adjacent property shall be fully protected throughout the operations. Blasting will not be permitted. Prevent damage to adjoining improvements and properties both above and below grade. Restore such improvements to original condition should damage occur. Replace trees and shrubs outside building area disturbed by operations.
- B. In accordance with generally accepted construction practices, Contractor shall be solely and completely responsible for working conditions at the jobsite, including safety of all persons and property during performance of the Work. This requirement shall apply continuously and shall not be limited to normal working hours.
- C. Safety precautions prevent damage to existing elements identified to remain or to be salvaged and prevent injury to the public and workmen engaged onsite. Demolish roofs, walls, and other building elements in such a manner that demolished materials fall within foundation lines of building. Do not allow demolition debris to accumulate onsite. Pull down hazardous work at end of each day; do not leave standing or hanging overnight, or over weekends:
 - 1. Protect existing items that are not indicated to be altered. Protect utilities designated to remain from damage.
 - 2. Protect trees, plant growth, and features designated to remain as final landscaping as indicated on Drawings.
 - 3. Protect bench marks from damage or displacement.
- D. Any construction review of the Contractor's performance conducted by the geotechnical Engineer is not intended to include review of the adequacy of Contractor's safety measures in, on, or near the construction site.

3.5 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

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- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

3.6 **PREPARATION**

- A. Scheduling:
 - 1. General: Coordinate and schedule demolition work as required by the Owner and as necessary to facilitate construction progress.
- B. Hazardous Materials:
 - 1. General: Identify chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with demolition operations, and notify such jurisdictional agencies as may be required. Collect and legally dispose of such materials at official disposal locations away from the site.
 - 2. Asbestos: If asbestos or materials containing asbestos are encountered, stop work immediately and contact the Owner. Do not proceed with demolition until directed by the Owner.
- C. Utility and Service Termination:
 - 1. Locate and identify existing utility, service, and irrigation system components affected by Work of this Contract. Review existing record Drawings, conduct site investigations, contact Underground Service Alert and other qualified cable/pipe/line locator services, and implement all other means necessary to define the location of underground systems.
 - 2. Prior to beginning any demolition, properly disconnect all water, gas, and electrical power supply at appropriate disconnect locations. Obtain all necessary releases and approvals from serving utility companies.
 - 3. Prior to demolition or disconnect, obtain the Owner's approval that such system does not impact facilities or systems beyond the extent of this Contract.
 - 4. Mark location of disconnected systems. Identify and indicate stub-out locations on Project record documents.
- D. Verify that existing plant life and features designated to remain are tagged or identified.
 - 1. The Architect will mark the features, trees, and shrubs to remain within the construction area. The Contractor shall not commence clearing and grubbing operations until authorized by the Owner and all protective measures are in place.
- E. Coordinate the time and duration of all system disconnects with the Owner.

3.7 DEMOLITION

- A. General Requirements:
 - 1. Clear areas required for access to site and execution of Work, including pavement, structures, foundations, vegetation, trash, and debris.
 - 2. Coordinate with the Owner the time of day and route to remove demolished materials from premises.
 - 3. Remove demolished materials from site as work progresses. Upon completion of work, leave areas of work in clean condition.

- 4. Remove all buried debris, rubble, trash, or other material not deemed suitable by the geotechnical Engineer.
- 5. Fill all voids or excavations resulting from clearing, demolition, or removal of vegetation with specified fill material.
- B. Fixture and Equipment Removal:
 - 1. Remove existing fixtures and equipment as identified and shown on Drawings and required by the Architect.
 - 2. Verify all service connections to fixtures and equipment designated for removal have been properly disconnected.
 - 3. Remove all conductors from conduit at all abandoned circuits.

3.8 SELECTIVE DEMOLITION FOR ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
 - 1. Verify that construction and utility arrangements are as indicated.
 - 2. Report discrepancies to Architect before disturbing existing installation.
 - 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Remove existing work as indicated and as required to accomplish new work.
 - 1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction.
 - 2. Remove items indicated on Drawings.
- C. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, Telecommunications, and): Remove existing systems and equipment as indicated.
 - 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
 - 2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 - 3. Refer to Section 01 10 00 Summary for other limitations on outages and required notifications.
 - 4. Verify that abandoned services serve only abandoned facilities before removal.
 - 5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.
- D. Protect existing work to remain.
 - 1. Prevent movement of structure; provide shoring and bracing if necessary.
 - 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 - 3. Repair adjacent construction and finishes damaged during removal work.
 - 4. Patch as specified for patching new work.

3.9 UTILITY AND BUILDING SERVICES REMOVAL AND RE-INSTALLATION

- A. Where crossing paths and potential points of interference with existing utility services are shown or can be reasonably inferred from surface conditions or evidence of subsurface systems, such as meter boxes, vaults, relief vents, cleanouts, and similar components:
 - Review all Contract Documents showing crossing paths and potential points of interference.
 - 2. Pot-hole or determine by other means the accurate depth and location of such utilities.
 - 3. Incorporate all costs required to complete work under this Contract, including additional trenching, re-routing of existing and new utilities, and all means necessary to construct work under this Contract.

- 4. No additional cost to Owner will be allowed for work necessary to accommodate utility conflicts where such crossing paths are shown on Contract Drawings or can be reasonably inferred from surface conditions or components.
- B. Remove all conductors from conduit at all abandoned electrical circuits.
- C. Seal off ends of all piping, drains, and other components as directed by Architect and serving utility.
- D. Where necessary to maintain service to existing utility and building systems, relocate or redirect all conduit and conductors, piping, drains, and associated system components:
 - 1. Re-circuit all electrical as required.
 - 2. Re-circuit all landscape irrigation valving and control systems as required.
 - 3. Temporarily terminate landscape system components in approved boxes or with approved caps, suitable for re-connection or extension.
 - 4. Extend or otherwise modify all site drainage systems, including catch basins, drain inlets, and piping. Fine grade to maintain proper drainage flow pattern to drains.
- E. Demolish structure in an orderly and careful manner:
 - 1. Use of explosives prohibited.

3.10 DEBRIS AND WASTE REMOVAL

- A. Demolished materials become property of the Contractor and shall be removed from premises, except those items specifically listed to be retained by the Owner.
- B. Remove debris, junk, and trash from site on a daily basis.
- C. Remove from site all materials not to be reused on site; comply with requirements of Section 01 74 19 Construction Waste Management and Disposal.
- D. Leave site in clean condition, ready for subsequent work.
- E. Clean up spillage and wind-blown debris from public and private lands.

3.11 CLEANING

- A. Upon completion of work of this Section, promptly remove from the working area all scraps and debris.
- B. Clean excess material from the surface of all remaining paved surfaces and utility structures.
- C. Power wash all concrete surfaces to remove stains, dried mud, tire marks, and rust spots.

END OF SECTION 02 41 00

SECTION 03 54 00 - CAST UNDERLAYMENT

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications, and the Sections included under Division 01 General Requirements and References, are included as a part of this Section as though bound herein.

1.2 SUMMARY

- A. Section Includes:
 - 1. Cementitious Underlayment.
 - 2. Accessories necessary for a complete installation.
- B. Related Sections:
 - 1. Section 01 73 00 Execution: Alteration project procedures; selective demolition for remodeling.

1.3 REFERENCE STANDARDS

- A. ACI 117 Specification for Tolerances for Concrete Construction and Materials; 2010.
- B. ACI PRC-302.2 Concrete Slabs that Receive Moisture-Sensitive Flooring Materials-Guide; 2023.
- C. ASTM C150/C150M Standard Specification for Portland Cement; 2022.
- D. ASTM C219 Standard Terminology Relating to Hydraulic and Other Inorganic Cements; 2024.
- E. ASTM E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.
- F. ASTM E413 Classification for Rating Sound Insulation; 2022.
- G. ASTM E492 Standard Test Method for Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies Using the Tapping Machine; 2022.
- H. ASTM E989 Standard Classification for Determination of Single-Number Metrics for Impact Noise; 2021.
- I. ASTM E1155 Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers; 2020.
- J. ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2023.
- K. ACI 302.1R Guide for Concrete Floor and Slab Construction; 2015.

1.4 SUBMITTALS

- A. Refer to Section 01 33 00 Submittal Procedures, for submittal procedures.
- B. Product Data: Provide manufacturer's data sheets documenting physical characteristics and product limitations of underlayment materials. Include information on surface preparation, environmental limitations, and installation instructions.
- C. Manufacturer's Instructions.

1.5 QUALITY ASSURANCE

- A. STC Rated Assemblies:
 - 1. For STC rated assemblies, provide materials and construction identical to those tested in assembly indicated, according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.
- B. IIC Rated Assemblies:

- 1. For IIC-rated assemblies, provide materials and construction identical to those tested in assembly indicated, according to ASTM E492 and classified according to ASTM E989 by an independent testing agency.
- C. Applicator Qualifications: Company specializing in performing the work of this section, and approved by manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Keep dry and protect from direct sun exposure, freezing, and ambient temperature greater than 105 degrees F (41 degrees C).

1.7 FIELD CONDITIONS

- A. Do not install underlayment until floor penetrations and peripheral work are complete.
- B. Maintain minimum ambient temperatures of 50 degrees F (10 degrees C) 24 hours before, during and 72 hours after installation of underlayment.
- C. During the curing process, ventilate spaces to remove excess moisture.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
 - 1. Cementitious Underlayment:
 - a. ARDEX Engineered Cements: www.ardexamericas.com.
 - b. BASF Construction Chemicals: .
 - c. Custom Building Products: www.custombuildingproducts.com.
 - d. Dayton Superior Corporation: www.daytonsuperior.com.
 - e. Dependable Chemical Co., Inc: www.floorprep.com.
 - f. Hacker Industries, Inc: www.hackerindustries.com.
 - g. H.B. Fuller Construction Products, Inc: www.tecspecialty.com.
 - h. Kaufman Products Inc: www.kaufmanproducts.net.
 - i. Koster American Corporation: www.kosterusa.com.
 - j. LATICRETE International, Inc: www.laticrete.com.
 - k. Loba-Wakol, LLC: www.loba-wakol.com.
 - I. MAPEI Corporation: www.mapei.com.
 - m. Maxxon Corporation: www.maxxon.com.
 - n. Platform Performance Cements: www.profloorprep.com.
 - o. The QUIKRETE Companies: www.quikrete.com.
 - p. SILPRO Corporation: www.silpro.com.
 - q. Stauf USA LLC: www.staufusa.com.
 - r. Texrite: www.texrite.com.
 - s. UZIN UTZ NORTH AMERICA, INC: us.uzin.com.
 - t. USG: www.usg.com.
 - u. W. R. Meadows, Inc: www.wrmeadows.com.
- B. Substitutions: Refer to Section 01 25 13 Product Substitution Procedures.
 - 1. Manufacturers and fabricators not listed must have a minimum of 5 years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered. Submit as a substitution.

2.2 DESCRIPTION

- A. Regulatory Requirements:
 - 1. Code Standards:

- a. Refer to specification Section 01 41 00 Regulatory Requirements for code requirements and code standards applicable to all materials and work necessary to complete the scope of work.
- 2. Concrete Standards:
 - a. American Concrete Institute (ACI) Publications: (Standards):
 - 1) Comply with the following unless modified by requirements in the Contract Documents:
 - (a) ACI 117, "Specification for Tolerances for Concrete Construction and Materials and Commentary."
 - (b) ACI 302.1R, "Guide to Concrete Floor and Slab Construction."
 - (c) ACI PRC-302.2, "Guide for Concrete Slabs that receive Moisture-Sensitive Flooring Materials."

2.3 MATERIALS

- A. Cementitious Underlayment: Blended cement mix, that when mixed with water in accordance with manufacturer's instructions will produce self-leveling underlayment with the following properties:
 - 1. Basis of Design Products:
 - a. ARDEX V 1200 with ARDEX P51 Primer manufactured by ARDEX Engineered Cements.
 - b. LATICRETE DRYTEK Skimcoat with DRYTEK LEVELEX Primer manufactured by LATICRETE International, Inc.
 - c. LATICRETE NXT Level Plus with NXT Primer manufactured by LATICRETE International, Inc.
 - d. LATICRETE NXT Skim manufactured by LATICRETE International, Inc.
 - e. LATICRETE SUPERCAP SC500 with LATICRETE SUPERCAP Primer Plus manufactured by LATICRETE International, Inc.
 - f. Planilevel 420 manufactured by MAPEI Corporation.
 - g. Products manufactured by The QUIKRETE Companies.
 - h. Floor-Top STG manufactured by W. R. Meadows, Inc.
 - 2. Material:
 - a. High-strength, calcium-aluminate-based, self-leveling concrete underlayment: packaged, dry mix for leveling concrete.
 - b. Cement Binder:
 - 1) ASTM C150/C150M, portland cement defined by ASTM C219.
 - c. Underlayment Additive:
 - 1) Resilient emulsion product of underlayment manufacturer, formulated for use with underlayment when applied to substrate and conditions indicated.
 - 3. Compressive Strength:
 - a. Minimum tested per ASTM C109/C109M.
 - 1) 1,250 psi (8.62 MPa) at 1 day.
 - 2) 2,700 psi (18.6 MPa) at 7 days.
 - 3) 4,200 psi (29.0 MPa) after 28 days.
 - 4. Flexural Strength:
 - a. Minumum 1,050 psi (7.24 MPa) after 28 days, tested per ASTM C348.
 - 5. Density:
 - a. 125 pounds per cubic foot (2002 kg/cu m), nominal.
 - 6. Final Set Time:
 - 7. Thickness:
 - a. Capable of thicknesses from feather edge to maximum 3-1/2 inch (89 mm).
- B. Primers:
 - 1. Description:

- a. Low-VOC, water-base acrylic primer used before the installation of underlayment materials.
- 2. Performance:
 - a. Polymer Type: Acrylic.
 - b. Percent Solids: 43% to 45%.
 - c. VOCs: 91.9 oz./cu. ft (92 g / L).
 - d. pH: 7 to 8.
 - e. Color: White.
- 3. Basis of Design Product:
 - a. Primer T manufactured by MAPEI Corporation.
- C. Aggregate:
 - 1. Dry, well graded, washed silica aggregate, approximately 1/8 inch (3 mm) in size and acceptable to underlayment manufacturer.
- D. Reinforcement:
 - 1. Galvanized metal lath complying with recommendations of underlayment manufacturer for specific project circumstances.
- E. Water:
 - 1. ASTM C1602/C1602M; clean, potable, and not detrimental to underlayment mix materials.
- F. Primer:
 - 1. As recommended by manufacturer.
- G. Joint and Crack Filler:
 - 1. Latex based filler, as recommended by manufacturer.

2.4 MIXING

- A. Site mix materials in accordance with manufacturer's instructions.
- B. Add aggregate for areas where thickness will exceed 1/2 inch (12.7 mm). Mix underlayment and water for at least two minutes before adding aggregate, and continue mixing to assure that aggregate has been thoroughly coated.
- C. Mix to self-leveling consistency without over-watering.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate surfaces are clean, dry, unfrozen, do not contain petroleum byproducts, or other compounds detrimental to underlayment material bond to substrate.

3.2 PREPARATION

- A. Concrete Substrates:
 - 1. Mechanically remove, according to manufacturer's written instructions, laitance, glaze, efflorescence, curing compounds, form release agents, dust, dirt, grease, oil, plasticizers, and contaminants that might impair underlayment bond.
 - 2. Do not use acid etching.
 - 3. Moisture Testing:
 - a. Perform anhydrous calcium chloride test, ASTM F1869. Proceed with installation only after substrates do not exceed a maximum moisture-vapor-emission rate of 3 lb of water / 1000 sq. ft (1.36 kg of water / 100 sq. m) in 24 hours.
- B. Metal Substrates:
 - 1. Mechanically remove, according to manufacturer's written instructions, rust, Metal Substrates: Mechanically remove, according to manufacturer's written instructions, rust, foreign matter, and other contaminants that might impair underlayment bond. Apply

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corrosion resistant coating compatible with underlayment if recommended in writing by underlayment manufacturer.

- C. Non-Porous Substrates:
 - 1. For ceramic tile, quarry tile, and terrazzo substrates, remove waxes, sealants, and contaminants that impair underlayment bond, and prepare surfaces according to manufacturer's written instructions.
- D. Wood Substrates:
 - 1. Mechanically fasten loose boards and panels to eliminate substrate movement and squeaks. Sand to remove coatings that might impair underlayment bond and remove sanding dust.
 - a. Install underlayment reinforcement recommended in writing by manufacturer.
- E. Remove substrate surface irregularities. Fill voids and deck joints with filler. Finish smooth.
- F. Vacuum clean surfaces.
- G. Prime substrate in accordance with manufacturer's instructions. Allow to dry.
- H. Close floor openings.
- I. Adhesion Tests:
 - 1. After substrate preparation, test substrate for adhesion with underlayment according to manufacturer's written instructions.

3.3 APPLICATION

- A. Mix and apply underlayment components according to manufacturer's written instructions.
 - 1. Close areas to traffic during underlayment application and for time period after application recommended in writing by manufacturer.
 - 2. Coordinate application of components to provide optimum adhesion to substrate and between coats.
 - 3. At substrate expansion, isolation, and moving joints, allow joint of same width to continue through underlayment.
 - 4. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- B. Apply underlayment to produce uniform, level surface. Apply final layer without aggregate to product surface. Feather edges to match adjacent floor elevations.
- C. Finish surfaces to the following tolerances, according to ASTM E1155, for a randomly trafficked floor surface:
 - 1. Floor Surface Receiving Carpet:
 - a. Finish surfaces to specified tolerances, according to ASTM E1155, for randomly trafficked floor surface receiving carpet or carpet tile:
 - b. Specified Overall Values (SOV):
 - (a) Flatness: F_F 25.
 - (b) Levelness: $F_L 20$.
 - c. Minimum Local Values (MLV):
 - (a) Flatness: F_F 17.
 - (b) Levelness: F_{L} 15.
 - 2. Floor Surface Receiving Resilient Floor Covering:
 - a. Finish surfaces to specified tolerances for slabs on grade, according to ASTM E1155, for randomly trafficked floor surface receiving a thin filmed floor covering such as resilient tile, resilient sheet flooring:
 - 1) Specified Overall Values (SOV):
 - (a) Flatness: F_F 35.
 - (b) Levelness: F_L 25.
 - 2) Minimum Local Values (MLV):

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- (a) Flatness: F_F 24.
- (b) Levelness: F_L 17.
- 3. Floor Surface Receiving Large Format Tile:
 - a. Finish surfaces to specified tolerances, according to ASTM E1155, for randomly trafficked floor surface receiving large format thin porcelain or ceramic tile, large format thin stone tile, and where very flat floor surface is required or recommended:
 - 1) Specified Overall Values (SOV):
 - (a) Flatness: F_F 50.
 - (b) Levelness: F_L 30.
 - 2) Minimum Local Values (MLV):
 - (a) Flatness: F_F 30.
 - (b) Levelness: F_{L} 24.
- 4. For randomly trafficked floor surfaces, finish surface to specified tolerances, according to ASTM E1155:
 - a. Specified Overall Values (SOV):
 - 1) Flatness: F_F 45.
 - 2) Levelness: F_L 35.
 - b. Minimum Local Values (MLV):
 - 1) Flatness: F_F 30.
 - 2) Levelness: F_L 24.
- D. Pump or pour material onto substrate. Do not retemper or add water.
 - 1. Pump, move, and screed while the material is still highly flowable.
 - 2. Be careful not to create cold joints.
 - 3. Wear spiked shoes while working in the wet material to avoid leaving marks.
- E. Place to indicated thickness, with top surface level to 1/8 inch in 10 ft (1:1000).
- F. For final thickness over 1-1/2 inches (38 mm), place underlayment in layers. Allow initial layer to harden to the point where the material has lost its evaporative moisture. Immediately prime and begin application of the subsequent layer within 24 hours.
- G. Place before partition installation.
- H. Where additional aggregate has been used in the mix, add a top layer of neat mix (without aggregate), if needed to level and smooth the surface.
- I. If a fine, feathered edge is desired, steel trowel the edge after initial set, but before it is completely hard.

3.4 CURING

- A. Once underlayment starts to set, prohibit foot traffic until final set has been reached.
- B. Cure underlayment according to manufacturer's written instructions. Prevent contamination during application and curing processes.

3.5 PROTECTION

- A. Protect against direct sunlight, heat, and wind; prevent rapid drying to avoid shrinkage and cracking.
- B. Do not permit traffic over unprotected floor underlayment surfaces.

END OF SECTION 03 54 00

SECTION 05 75 00 - DECORATIVE FORMED METAL

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications, and the Sections included under Division 01 General Requirements and References, are included as a part of this Section as though bound herein.

1.2 SUMMARY

- A. Section Includes:
 - 1. Edge-protection and transition profiles for floors.
- B. Related Sections:
 - 1. Section 09 21 16 Gypsum Board Assemblies.
 - 2. Section 09 65 00 Resilient Flooring.

1.3 REFERENCE STANDARDS

- A. AAMA 611 Specification for Anodized Architectural Aluminum; 2024.
- B. ASTM B26/B26M Standard Specification for Aluminum-Alloy Sand Castings; 2018, with Editorial Revision.
- C. ASTM B209/B209M Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
- D. ASTM B210/B210M Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes; 2019a.
- E. ASTM B221 Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.
- F. ASTM B221M Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.
- G. ASTM B247 Standard Specification for Aluminum and Aluminum-Alloy Die Forgings, Hand Forgings, and Rolled Ring Forgings; 2020.
- H. ASTM B247M Standard Specification for Aluminum and Aluminum-Alloy Die Forgings, Hand Forgings, and Rolled Ring Forgings (Metric); 2020.
- I. ASTM B429/B429M Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube; 2020.

1.4 SUBMITTALS

- A. Refer to Section 01 33 00 Submittal Procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
 - 4. Warranty.
- C. Verification Samples: For each finish product specified, minimum size 6 inches (305 mm) square, representing actual product in color and texture.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original, unopened, undamaged containers with identification labels intact.
 - 1. Package for protection against transportation damage.
 - 2. Provide markings to identify components consistently with drawings.

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- B. Store products protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
 - 1. Store in well-ventilated space out of direct sunlight.
 - 2. Protect from moisture and condensation.
 - 3. Avoid contact with other materials that might cause staining, denting, or other surface damage.

1.6 WARRANTY

A. Refer to Section 01 77 00 - Closeout Procedures for additional warranty requirements.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
- B. Substitutions: Refer to Section 01 25 13 Product Substitution Procedures.
 - 1. Manufacturers and fabricators not listed must have a minimum of 5 years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered. Submit as a substitution.

2.2 DESCRIPTION

2.3 EDGE-PROTECTION AND TRANSITION PROFILES FOR FLOORS

- A. Flooring Transition, Type 3 (MT-3):
 - 1. Basis of Design Product: DILEX-AHK manufactured by Schluter.
 - 2. Description: Cove-shaped profile with single anchoring leg for anchoring into floor mortar.
 - 3. Material and Finish: AE Satin Anodized Aluminum.
 - 4. Height: Height as required.
 - 5. Radius: 3/8 inch (10 mm).
- B. Flooring Transition, Type 1 (MT-1):
 - 1. Basis of Design Product: RENO-RAMP manufactuered by Schluter.
 - 2. Description: anodized aluminum profile with textured, sloped exposed surface, tapered leading edge, integrated trapezoid-perforated anchoring leg, and integrated grout joint spacer.
 - 3. Material and Finish: AE Satin Anodized Aluminum.
 - 4. Height: Height as required.
 - 5. Ramp Length: As required to maintain a slope not greater than one unit vertically in two units horizontally.
- C. Flooring Transition, Type 2 (MT-2):
 - 1. Basis of Design Product: RENO-U manufactured by Schluter.
 - 2. Description: profile with sloped exposed surface, 5/32 inch (4 mm) tall leading edge, integrated trapezoid-perforated anchoring leg, and integrated grout joint spacer.
 - 3. Material and Finish: AE Satin Anodized Aluminum.
 - 4. Height: Height as required.

2.4 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - 1. Sheet and Plate: ASTM B209/B209M.
 - 2. Extruded Bars, Rods, Profiles, and Tubes:ASTM B221/ASTM B221M , Alloy 6063-T5/T52.
 - 3. Extruded Structural Pipe and Tubes: ASTM B429/B429M, Alloy 6063-T6.
 - 4. Drawn Seamless Tubing: ASTM B210/B210M, Alloy 6063-T832.
 - 5. Plate and Sheet: ASTM B209/B209M, Alloy 6061-T6.

- 6. Die and Hand Forgings: ASTM B247/ASTM B247M, Alloy 6061-T6.
- 7. Castings: ASTM B26/B26M, Alloy A356.0-T6.
- B. Factory Finish:
 - 1. Clear Anodic Coating: AA-M12C22A41, AAMA 611, Architectural Class I Clear Anodic Coating.

PART 3 EXECUTION

3.1 APPLICATION

A. Consult manufacturer's current technical literature for proper design and installation instructions.

END OF SECTION 05 75 00

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SECTION 06 20 00 - FINISH CARPENTRY

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications, and the Sections included under Division 01 General Requirements and References, are included as a part of this Section as though bound herein.

1.2 SUMMARY

- A. Section Includes:
 - 1. Providing all finish carpentry items including, but not limited to:
 - a. Finish carpentry.
 - b. Millwork and cabinetry.
 - c. Plastic laminate.
 - d. Casework hardware.
 - e. Miscellaneous millwork.
 - 2. Installation of:
 - a. Finish hardware.
 - b. Plastic laminate faced wood doors.
 - c. Countertops.
- B. Related Sections:
 - 1. Section 06 10 00 Rough Carpentry.
 - 2. Section 12 36 00 Countertops.
 - 3. Section 13 34 23.14 Fabricated Classroom Buildings.

1.3 REFERENCE STANDARDS

- A. ANSI A208.1 American National Standard for Particleboard; 2022.
- B. ANSI A208.2 Medium Density Fiberboard (MDF) for Interior Applications; 2022.
- C. AWS D1.1/D1.1M Structural Welding Code Steel; 2020, with Errata (2023).
- D. AWS D1.2/D1.2M Structural Welding Code Aluminum; 2014, with Errata (2020).
- E. AWS D1.3/D1.3M Structural Welding Code Sheet Steel; 2018, with Errata (2022).
- F. AWS D1.6/D1.6M Structural Welding Code— Stainless Steel; Current.
- G. BHMA A156.9 Cabinet Hardware; 2020.
- H. KCMA A161.1 Performance and Construction Standard for Kitchen and Vanity Cabinets; 2017.
- I. NEMA LD 3 High-Pressure Decorative Laminates; 2005.

1.4 SUBMITTALS

- A. Product Data:
 - 1. Manufacturer's specifications and other data needed to prove compliance with specified requirements.
 - 2. Manufacturer's preprinted product information for all hardware proposed on the Project.
 - 3. Manufacturer's preprinted maintenance instructions for the casework hardware.
- B. Shop Drawings:
 - 1. Indicate size, material, and finish.
 - 2. Show locations and installation procedures, including hardware, sinks, service fixtures, trim, and other pertinent data for each unit.
- C. Certification: Provide manufacturer's certification that casework has been fabricated and installed according to WI "Custom" Grade guidelines or better.

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D. Samples: Two each, 6 inches by 6 inches by 3/4 inch (152 mm by 152 mm by 19 mm) sample of specified particleboard core with grade stamp for use as verification of installed product.

E. Closeout:

- 1. Record drawings: Indicate revisions to original Drawings and shop drawings.
- 2. Manufacturer contact names, addresses, and phone numbers.
- 3. Finish material schedule: Names and color numbers of laminates and stains.
- 4. Keys: Provide additional master key for each room and additional locksets totaling one percent (1%) of total Project for attic stock.

1.5 PERFORMANCE REQUIREMENTS

- A. Unless otherwise indicated, perform work in accordance with WI "Architectural Woodwork Standards," Custom Grade, except where specification exceeds those standards the more stringent shall govern.
- B. Fabricate millwork and cabinetry in accordance with KCMA A161.1, NEMA LD 3, 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 pounds (363 kg).
 - 2. Cabinet front joint loading test: 425 pounds (193 kg).
 - 3. Wall cabinet static load test: 2,000 pounds (907 kg).
 - 4. Drawer front joint loading test: 600 pounds (272 kg).
 - 5. Drawer construction/static load test: 750 pounds (340 kg).
 - 6. Cabinet adjustable shelf support device/static load test: 300 pounds (136 kg).
- C. Shelf Loading: Comply with loading/deflection standards of the Composite Panel Association.

1.6 QUALITY ASSURANCE

- A. Manufacturers and fabricators must be Woodwork Institute listed Accredited Millwork Companies, current roster.
- B. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful inservice performance. Shop is a licensee of WI's Certified Compliance Program.
- C. Installer Qualifications: Licensee of WI's Certified Compliance Program.
- D. Quality Standard:
 - 1. Unless otherwise indicated, comply with WI's "Manual of Millwork" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements:
 - a. Before delivery to jobsite, millwork supplier:
 - 1) Licensees of WI shall issue a certified compliance certificate indicating millwork products being furnished for this Project, and certifying that these products and their installation, will fully meet requirements of grade or grades specified.
 - 2) Non-licensees of WI shall provide evidence that they have arranged for inspection by WI inspector after completion of fabrication and installation. If conditions are found to be compliant, inspector will issue Compliance Certificate indicating millwork products being furnished for this Project and certifying that these products and their installation will fully meet requirements of grade or grades specified.
 - b. Each elevation of casework and each countertop shall bear certified compliance label.
 - c. Cabinet Design Series (CDS): CDS numbers on Drawings indicate typical designs.
- E. Pre-Installation Conference:
 - 1. Refer to Section 01 31 00 Project Management and Coordination.

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1.7 WARRANTY

- A. Warranty the work specified herein for 5 years against becoming unserviceable or causing an objectionable appearance resulting from either defective or nonconforming materials and workmanship.
- B. Defects shall include but not be limited to the following:
 - 1. Rough or difficult operation, or loose or missing parts.
 - 2. Delamination of surfaces.
 - 3. Noticeable deterioration of finish.
 - 4. Warped or misaligned surfaces or telegraphing of subsurface imperfections.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver completed laminate clad casework, countertops, and related products only after wet operations in building are completed. Store in ventilated place, protected from the weather, with relative humidity range of 20 to 50 percent.
- B. Protect finished surfaces from soiling and damage during handling and installation with a protective covering.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
 - 1. Plastic Laminate:
 - a. Abet Laminati, Inc: abetlaminati.com.
 - b. Formica Corporation: www.formica.com.
 - c. Panolam Industries International Inc: panolam.com/hpl-high-pressure-laminate.
 - d. Wilsonart, LLC: www.wilsonart.com.
 - 2. Millwork Fabricators:
 - a. Woodwork Institute listed Accredited Millwork Companies, current roster, this shall not preclude the Contractor from using other manufacturers, provided they produce equivalent products of the type specified for the scope and size of the Project.
 - 3. Hardware:
 - a. Doug Mockett & Company, Inc.: www.mockett.com.
 - b. Grass America: www.grassusa.com.
 - c. Hafele North America Co.: www.hafele.com.
 - d. Julius Blum & Co., Inc.: www.juliusblum.com.
 - e. Knape & Vogt: www.knapeandvogt.com.
- B. Substitutions: Refer to Section 01 25 13 Product Substitution Procedures.
 - 1. Manufacturers and fabricators not listed must have a minimum of 5 years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered. Submit as a substitution

2.2 DESCRIPTION

- A. Regulatory Requirements:
 - 1. Code Standards:
 - a. Refer to specification Section 01 41 00 Regulatory Requirements for code requirements and code standards applicable to all materials and work necessary to complete the scope of work.
 - 2. Welding Qualifications: Qualify procedures and personnel according to the following:
 - a. Aluminum: AWS D1.2/D1.2M.
 - b. Sheet Steel: AWS D1.3/D1.3M.
 - c. Stainless Steel: AWS D1.6/D1.6M.

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2.3 MILLWORK MATERIALS

- A. Plastic Laminate:
 - 1. High-pressure decorative laminate complying with NEMA LD 3, and the following requirements:
 - a. Exterior Color Selection Available:
 - 1) PL-1: Plastic Laminate Writable Surface.
 - (a) Manufacturer: Wilsonart, LLC.
 - (b) Color: Markerboard White D514.
 - (c) Finish: Dry Erase Writable Finish.
 - (d) Location: As indicated on Drawings.
 - 2) If laminate has wood grain, direction of grain shall be vertical on door, end panels, fascia panels, and exposed backs; horizontal on drawer faces, aprons, and top rails.
 - 2. Laminate Grades:
 - a. Exposed doors, finished end panels, and other vertical surfaces: GP28 (0.028 inch (0.7 mm) thick nominal)
 - b. Horizontal surfaces other than top: GP28 (0.028 inch (0.7 mm) thick nominal)
 - c. Cabinet Liner: CL20 (0.020 inch (0.5 mm) nominal), white.
 - d. Work surfaces and countertops: GP50 (0.050 inch (1.3 mm) thick nominal) with BK20 (0.20 inch (5.1 mm) thick) backer sheet.
 - e. Backsplash: PH42 (0.042 inch (1.1 mm) nominal) with nominally balanced backer sheet.
 - 3. Adhesive: PVA water resistant adhesive. Contact adhesives not permitted.
 - 4. Pressure Fused Laminate:
 - a. NEMA LD 3 VGL, and NEMA LD 3 CLS, melamine resin impregnated, 120-gram PSM minimum, thermofused to core under pressure.
 - b. Color:
 - 1) Closed interiors, underside of wall cabinets: White.
 - 2) Exposed and semi-exposed open cabinets: Match exterior.
 - c. Provide balanced construction with same thermofused melamine. Unsurfaced coreboard or simple backers not allowed.
- B. Wood Veneer:
 - 1. Species: Maple.
 - 2. Cut: As selected by the Architect.
 - 3. Matching: As selected by the Architect.
 - 4. Finish: To match the Architect 's sample.
- C. Core Material:
 - 1. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
 - 2. Medium-density fiberboard: ANSI A208.2, Grade MD.
 - 3. Plywood: Shop sanded, exterior grade veneer cored, hardwood faced, any species, with no defects affecting strength or utility. Overlay plywood not permitted. Plywood allowed at countertops and toe-base only.
 - 4. Water resistant treated plywood shall have 24 hour thickness swell factor of 5 percent or less and 24 hour water absorption factor of 10 percent or less; P.S. 51, Type II or better.
 - 5. Cabinet components shall be of the following minimum core thicknesses:
 - a. Cabinet Backs, Drawer Body, and Drawer Bottoms: 1/2 inch (13 mm) particleboard.
 - b. Door and Drawer Face, Base, Wall, and Tall Cabinet Tops and Bottoms, Cabinet Sides, Drawer Spreaders, Cabinet Back Rear Hangstrips, Structural Dividers, and Exposed Cabinet Backs: 3/4 inch (19 mm) particleboard.

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- c. Work Surfaces and Countertops: Minimum 1 inch (25 mm) particleboard or plywood. Use water resistant treated plywood core at counters with sinks.
- d. Shelves: 3/4 inch (19 mm) particleboard core for 30 inches (762 mm) long or less, 1 inch (25 mm) thick particleboard core for more than 30 inches (762 mm) long; 14 inch (356 mm) deep, unless otherwise noted. Provide vertical dividers for shelves over 36 inches (914 mm) long.
- e. Cabinet Toe-Base: 3/4 inch (19 mm) plywood. No particleboard within 3 inches (76 mm) of floor.
- D. Countertops:
 - 1. Refer to Section 12 36 00 Countertops.
- E. Toe Spaces:
 - 1. Leave toe spaces unfinished for installation of resilient base, unless otherwise shown.
- F. End Panels and Filler Strips:
 - 1. Match adjacent case-piece.
- G. Edging:
 - 1. Provide the following in accordance with "Edging Locations:"
 - a. Flat-Edge PVC: 0.020 inch (0.5 mm). Solid, high-impact, purified, color-through, acid resistant, machine-applied with hot melt adhesives.
 - b. 1/8 inch (3 mm) PVC: Solid, high-impact, purified, color-thru, acid resistant, prelamination primed edging, machine-applied with hot melt adhesives, and machine profiled to 1/8 inch (3 mm) radius.
 - 2. Edging Locations:
 - a. Cabinet body edge, including door/drawer front spacer rail:
 - 1) Flat edge PVC, color as selected by the Architect.
 - b. Forward edge of interior body components, interior dividers, shelf, and top edges of drawer body:
 - 1) Flat edge PVC to match cabinet interior surface color.
 - c. Door/drawer-front edging:
 - 1) 1/8 inch (3 mm) PVC, color matched to standard laminates.

2.4 CABINET HARDWARE

- A. All hardware shall meet BHMA A156.9 and shall be subject to approval by the Architect. All keying shall match existing master key system and be approved by the Owner:
- B. Hinges:
 - 1. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, self-closing.
 - a. Provide 170 degree minimum opening capabilities. For end doors perpendicular to walls, provide 90 degree type.
 - b. For doors 32 inches (813 mm) high or less, provide 2 pair of hinges, add 1/2 pair for every additional 20 inches (508 mm).
 - c. Basis of Design Products:
 - 1) No. MD61-253-Z00 manufactured by Grass America.
 - 2) No. 326.05 manufactured by Hafele North America Co.
 - 3) No. B71650 manufactured by Julius Blum, Inc.
 - 2. One pair per door to 48 inches (1,219 mm) height. One and one-half pair over 48 inches (1,219 mm) in height. Hinge shall accommodate 13/16 inch (21 mm) thick laminated door and allow 270-degree swing.
 - 3. Finish: US26D.
- C. Pulls:
 - 1. 4 Inch Wire:
 - a. Wire design, 4 inches (102 mm) long.
- b. Finish: Brushed chrome, US26D finish.
- D. Sliding Door Hardware:
 - 1. Frameless 1/4 inch (6 mm) glass sliding doors; double track rolling door assembly.
 - 2. Framed 13/16 inch (21 mm) thick stile and rail sliding doors; top mounted track with dual roller hangers. Vertical adjustment for accurate alignment.
- E. Catches:
 - 1. Provide opening resistance in compliance with applicable accessibility regulations:
 - a. Provide top-mounted magnetic catch for base and wall cabinet door.
 - b. Provide two at each tall cabinet door. Catch housing shall be molded in White.
- F. Adjustable Shelf Supports:
 - 1. Dual-pin design with anti-tip-up shelf restraints for both 3/4 inch (19 mm) and 1 inch (25 mm) shelves.
 - 2. Include keel to retard shelf slide-off, and slot for mechanical attachment of shelf to clip.
 - 3. Load rating shall be minimum 300 pounds each support without failure.
 - 4. Basis of Design: Products manufactured by Knape and Vogt.
 - a. Standard: Model 255 Steel.
 - b. Supports: Model 256.
- G. Locks: Five-disk tumbler cam-style with strike. Locks on cabinets in same room keyed alike. Provide two 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 the Owner to change lock arrangements without tools.

2.5 SPECIALTY ITEMS

- A. Grommets:
 - 1. Basis of Design Product:
 - a. Model No. EDP3 manufactured by Doug Mockett & Company, Inc.
 - 2. Size: 2-1/2 inch (64 mm) diameter with Flip-Top tab in cap.
 - 3. Colors: As selected by the Architect from manufacturer's available colors.
 - 4. Number/location: Where electrical, telephone, and computer data wiring need to pass through tops whether shown or not.
- B. Keyboard Drawers (at all knee spaces):
 - 1. Basis of Design Product No. SD-1 as manufactured by Knape & Vogt.
- C. Molded Personal Pencil Drawer: High-impact 100 Polystyrene with in-stop, out-stop, and selfclosing features. Provide under top mounted 100 pound (45 kg) self-closing slides. Twelve compartment drawer body, and slides, black. Provide where indicated on plans.

2.6 SOLID STOCK

A. Moisture Content: Percent of moisture in relation to over-dry weight shall be between eight percent (8%) and 13 percent at time of installation.

2.7 MILLWORK FABRICATION

- A. Use the WI Custom Grade woodwork classification unless noted elsewhere complying with referenced quality standard.
- B. Fabricate casework and related products to dimensions, profiles, and details shown on Drawings. Fabricate casework square, plumb, and true.
- C. Detailed Requirements for Cabinet Construction:
 - 1. Toe-Base:
 - a. Continuous, ladder type platform with concealed fastening to cabinet bottom, level and secured to floor.

- b. Toe-base at exposed cabinet end panels shall be recessed 1/4 inch (6 mm) from face of finished end for flush installation of finished base material.
- c. No cabinet sides-to-floor will be allowed.
- 2. Cabinet Top and Bottom:
 - a. Solid sub-top shall be furnished for all base and tall cabinets.
 - b. At cabinets over 36 inch (914 mm), bottoms and tops shall be mechanically joined by a fixed divider.
 - c. Assembly devices shall be concealed on bottom side of wall cabinets.
- 3. Cabinet Sides:
 - a. Doweled, and glued under pressure, or attached with fully concealed interlocking mechanical fasteners to sub-top and bottom.
 - b. Drill holes for adjustable shelves 1-1/4 inches (32 mm) on center.
- 4. Cabinet Backs:
 - a. Side bound, captured in grooves, recessed from cabinet rear, and securely fastened at top and bottom.
 - b. Hang rails shall be located at rear of cabinet back and fastened to cabinet sides. Provide minimum of two at base, two at wall, and three at tall cabinets as instructed by casework manufacturer.
 - c. Provide removable back panels and closure panels for plumbing access at all sink cabinets, and where shown on Drawings.
- 5. Exposed end corner and face frame attachment:
 - a. Butt joint, glued and finish nailed; or attached with fully concealed interlocked mechanical fasteners.
- 6. Door and Drawer Fronts:
 - a. Drawer fronts and hinged doors shall overlay the cabinet body. Maintain a maximum 1/8 inch reveal between pairs of doors, between door and drawer front, or between multiple drawer fronts within the cabinet.
 - b. Where indicated, provide stile and rail doors with full 1/4 inch (6 mm) plate glass, hinged or sliding. Exposed lite-opening edges shall be trimmed and glazed with extruded glazing bead.
 - c. Where indicated, frameless sliding glass doors shall be 1/4 inch (6 mm) thick plate glass with ground and polished edges. Fit with anodized aluminum shoes and nylon rollers.
- D. Drawers:
 - 1. Drawer fronts: Apply to separate drawer body component sub-front.
 - 2. Drawer sides: Doweled to receive front and back, glued under pressure, machine squared.
 - 3. Drawer bottom: Set into front and sides, 1/4 inch (6 mm) deep groove with minimum 3/8 inch (19 mm) standing shoulder, continuously glued. Reinforce drawer bottoms with 1/2 inch (13 mm) by 4 inches (102 mm) front-to-back intermediate underbody stiffeners, mechanically fastened. One at 24 inches (610 mm), two at 36 inches (914 mm), and over.
 - 4. Paper Storage Drawers: Fitted with full width hood at back.
 - 5. Hanging file drawers shall be fabricated to accept letter size hanging folders compatible with Pendaflex system.
- E. Vertical and Horizontal Dividers: As required by manufacturer for type and style of component.
- F. Door/Drawer Front Rail: As required by manufacturer for type and style of component, and hardware placement.
- G. Typical Desk or Counter Height at Knee Space Locations: 30 inches (762 mm) A.F.F.

PART 3 EXECUTION

3.1 JOB CONDITIONS

- A. Environmental Requirements:
 - 1. Do not install casework until permanent HVAC systems are operating and temperature and humidity have been stabilized for at least one (1) week:
 - a. Manufacturer/supplier shall advise the Contractor of temperature and humidity requirements for architectural casework installation areas.
 - b. After installation, control temperature and humidity to maintain relative humidity between 25 and 55 percent.
- B. Conditions: Do not store or install casework in building until concrete, masonry, and drywall/plaster work is dry.

3.2 COORDINATION

- A. Coordinate the work of this Section with plumbing work specified in Division 22. Coordinate sink opening construction with sinks specified in Division 22 or as indicated on Drawings.
- B. Coordinate location of blocking in walls for installation and support of wall cabinets.

3.3 MILLWORK INSTALLATION

- A. Positioning: Place approximately level, plumb, and at right angles to adjacent work.
- B. Fitting: Where field cutting or trimming is necessary, perform in a neat, accurate, professional manner without damaging the products and adjacent work.
- C. Anchorage: Attach securely so the products will perform to their maximum ability without damage from inadequate fastenings.
- D. Fasten tops to frames with concealed clips, screws, and glue.
- E. Install simulated wood trim in locations shown on Drawings and in accordance with manufacturer's instructions.

3.4 EXISTING DOOR LAMINATE RESURFACING

- A. Resurfacing procedures shall be in accordance with the recommendations and instructions of the laminate and adhesive manufacturers.
- B. Acclimate laminate to the same environment as existing material at least 48 hours. Perform work in well-ventilated area, out of the way of construction dust and traffic to maintain clean adhesion.
- C. Clean the substrate with detergent or non-flammable solvent as instructed by laminate manufacturer to remove wax, grease, and polish deposits.
- D. Using a belt sander or sander instructed by manufacturer, sand entire surface to remove original finish. Remove sanding dust thoroughly.
- E. Coat the sanded surface and back of laminate with a uniform coating of contact adhesive. Allow to dry thoroughly prior to assembling. Assembling wet adhesive lines will trap solvent and may result in poor bonding. Follow the adhesive manufacturer's instructions.
- F. Index the laminate with the substrate. Make initial contact by smoothing with palms. Apply pressure using a "J" roller or rotary press. Allow to set as instructed by adhesive manufacturer to achieve full adhesion to maintain warranty. Trim with recommended tools.
- G. Apply laminate to door faces and exposed vertical edges. Apply edges before face. Paint top and bottom edges to color match facing.
- H. Coordinate hardware and vision lite cutouts with work of other Sections.

3.5 FINISH HARDWARE INSTALLATION

- A. The supplier will mark each item of hardware for location. Protect the markings until each item is installed. If any item is delivered to the job not properly marked, return it to the supplier for marking before attempting to install it.
- B. Check markings on hardware for proper location. Install and make necessary adjustments for proper working order. Any hardware damaged by improper adjustment or careless abuse will be replaced by the Contractor at their expense.
- C. Provide clean, properly sized, and accurately placed mortises and drilled holes for all mortise hardware such as locksets and for cylindrical locks where specified only.
- D. Fit all surface-applied hardware accurately.
- E. After hardware is installed, protect exposed surfaces by use of heavy paper and masking tape and maintain until job completion.
- F. Remove all finish hardware except that which is primed for painting before painter's finish is applied. Permanently replace and re-adjust for proper function after painter's finish has dried hard.
- G. Millwork the Contractor shall be responsible for hardware on millwork.

3.6 PLASTIC LAMINATE FACED WOOD DOOR INSTALLATION

- A. Protect all doors during handling.
- B. Install doors in accordance with manufacturer's instructions.
- C. Install and adjust doors for smooth, quite operation.
- D. Refer to Section 08 71 00 Door Hardware where applicable.

END OF SECTION 06 20 00

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SECTION 08 14 16 - FLUSH WOOD DOORS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications, and the Sections included under Division 01 General Requirements and References, are included as a part of this Section as though bound herein.

1.2 SUMMARY

- A. Section includes requirements including but not limited to:
 - 1. WI Certified, fire-rated and non-rated, flush panel wood doors.
 - 2. Solid core doors with MDF and plastic laminate faces.
 - 3. Integration of a security system.
 - 4. Factory fitting flush wood doors to frames and factory machining for hardware.
 - 5. Accessories necessary for a complete installation.
- B. Related Sections:
 - 1. Section 05 50 00 Metal Fabrications.
 - 2. Section 07 92 00 Joint Sealants.
 - 3. Section 08 11 13 Hollow Metal Doors and Frames.
 - 4. Section 08 80 00 Glazing.
 - 5. Section 09 21 16 Gypsum Board Assemblies.
 - 6. Section 09 24 00 Cement Plastering.

1.3 **REFERENCE STANDARDS**

- A. ANSI A208.1 American National Standard for Particleboard; 2022.
- B. AWS D1.1/D1.1M Structural Welding Code Steel; 2020, with Errata (2023).
- C. AWS D1.2/D1.2M Structural Welding Code Aluminum; 2014, with Errata (2020).
- D. AWS D1.3/D1.3M Structural Welding Code Sheet Steel; 2018, with Errata (2022).
- E. AWS D1.6/D1.6M Structural Welding Code— Stainless Steel; Current.
- F. NFPA 80 Standard for Fire Doors and Other Opening Protectives; 2025.
- G. NFPA 105 Standard for Smoke Door Assemblies and Other Opening Protectives; 2025.
- H. NFPA 252 Standard Methods of Fire Tests of Door Assemblies; 2022.
- I. UL 10C Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.
- J. UL 1784 Standard for Air Leakage Tests of Door Assemblies; Current Edition, Including All Revisions.

1.4 SUBMITTALS

- A. Product Data:
 - 1. Technical data for each type of door indicated:
 - a. Include details of core and edge construction, louvers, and trim for openings.
 - b. Include factory finishing specifications.
 - c. Include laboratory test report results of hinge loading, cycle/slam, stile edge screw withdrawals, and stile edge split resistance for fire rated doors.
- B. Shop Drawings:
 - 1. Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:
 - a. Dimensions and locations of blocking.
 - b. Dimensions and locations of mortises and holes for hardware.

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- c. Dimensions and locations of cutouts.
- d. Undercuts.
- e. Requirements for veneer matching.
- f. Doors to be factory finished and finish requirements.
- g. Fire-protection ratings for fire rated doors.
- C. Certificate of Compliance for Fire Rated Doors: Provide copies of Certificate of Compliance for fire rated door assemblies and smoke and draft control door assemblies.
- D. Certificate of Compliance regarding WI construction grade.
- E. Certificate of Compliance regarding WI installation requirements.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Fire rated wood doors NFPA 80 listed and labeled by UL for fire protection ratings indicated, based on testing at positive pressure according to UL 10C:
 - a. 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.
 - Temperature rise limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 degrees F (250 degrees C) above ambient after 30 minutes of standard fire-test exposure.
 - 2. Smoke and draft control door assemblies: Listed and labeled for smoke and draft control, based on testing according to UL 1784.
 - 3. Accessibility requirements comply with applicable requirements:
 - a. Americans with Disabilities Act of 1990, as amended:
 - 1) ADA Title II Regulations & the 2016 ADA Standards for Accessible Design.
 - 4. Quality standard: In addition to requirements specified, comply with Woodwork Institute WI Manual of Millwork
 - 5. Maintain at least one copy of WI Manual for reference at jobsite throughout installation period.
- B. Source Limitations: Obtain flush wood doors through one (1) source from a single manufacturer.
- C. Pre-Installation Conference: Conduct conference at site.

1.6 WARRANTY

- A. Warranty:
 - 1. Written warranty signed by manufacturer, installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship. A representative of the door manufacturer shall inspect the installed doors and shall note on the warranty that no provisions of the warranty have been nullified in the manufacture and/or installation:
 - a. Failures include, but are not limited to, the following:
 - 1) Warping (bow, cup, or twist) more than 1/4-inch (6.4 mm) in a 42-inch by 84-inch (1,067 mm by 2,134 mm) section.
 - 2) Telegraphing of core construction in face veneers exceeding 0.01-inch in a three-inch (0.25 mm in a 76.2 mm) span.
 - b. Warranty include installation and finishing that may be required due to repair or replacement of defective doors.
 - c. Warranty period for solid core exterior doors: Five (5) years from date of Substantial Completion.

d. Warranty period for solid core interior doors: Life of installation.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect wood doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Store wood doors on a flat level surface in a dry, well ventilated, place. Keep wood doors a minimum of 3-1/2 inches (85 mm) off floor surface and protected by a protective covering under the bottom door and over the top door. Covering should protect wood doors from dirt, water, and abuse but allow for air circulation under and around the stack. Do not store wood doors in direct sunlight. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in heavy duty cardboard cartons prior to shipment from factory. Mark each door on top and bottom rail with opening number used on shop drawings using temporary, removable, or concealed markings.
- C. Handle wood doors with clean gloves. Lift and carry wood doors when moving them around the site; do not drag wood doors across one another.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
 - 1. Flush Wood Doors:
 - a. Haley Brothers, Inc.
 - b. Oshkosh Door Company.
 - c. Oregon Door.
 - d. Weyerhaeuser.
 - 2. High Pressure Laminate:
 - a. Formica Corp.
 - b. Panolam Surface Systems.
 - c. Wilsonart LLC.
- B. Substitutions: Refer to Section 01 25 13 Product Substitution Procedures.
 - 1. Manufacturers and fabricators not listed must have a minimum of 5 years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered. Submit as a substitution.

2.2 DESCRIPTION

- A. Regulatory Requirements:
 - 1. Code Standards:
 - a. Refer to specification Section 01 41 00 Regulatory Requirements for code requirements and code standards applicable to all materials and work necessary to complete the scope of work.
 - 2. Welding Qualifications: Qualify procedures and personnel according to the following:
 - a. Aluminum: AWS D1.2/D1.2M.
 - b. Sheet Steel: AWS D1.3/D1.3M.
 - c. Stainless Steel: AWS D1.6/D1.6M.
 - d. Steel: AWS D1.1/D1.1M.

2.3 MATERIALS

- A. Fire Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
 - 1. Cores: Provide core specified or mineral core as necessary to provide fire protection rating indicated.

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- 2. Edge construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.
- 3. Pairs: Provide fire retardant stiles 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.
- 4. Pairs:
 - a. Provide formed steel edges and astragals with intumescent seals:
 - 1) Finish steel edges and astragals with baked enamel same color as doors.
 - 2) Finish steel edges and astragals to match door hardware (locksets or exit devices).
- B. Smoke and Draft Control Door Assemblies: Listed and labeled for smoke and draft control, based on testing according to UL 1784.
- C. Particleboard Core Doors:
 - 1. Blocking:
 - a. Provide wood blocking in particleboard core doors as necessary to eliminate throughbolting hardware:
 - 1) Five-inch (125 mm) top rail blocking in all doors, whether or not closers are scheduled.
 - 2) Five-inch (125 mm) bottom rail blocking, in exterior doors and doors indicated to have protection plates.
 - 3) Five-inch (125 mm) midrail blocking, in doors indicated to have exit devices.
 - 4) 4-1/2 inch by 10 inch (114 mm by 250 mm) lock blocks, in doors indicated with lock and latch sets.
 - 2. Provide doors with glued wood stave or structural composite lumber cores instead of particleboard cores for doors indicated to receive exit devices.
- D. Fire Rated Wood Doors with Plastic Laminate Face Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C:
 - 1. Core: Noncombustible mineral product complying with requirements and testing and inspecting agency for fire protection rating indicated.
 - 2. Blocking:
 - a. Provide composite blocking with improved screw-holding capability approved for use in doors of fire protection ratings indicated as follows:
 - 1) 5 inch (127 mm) top rail blocking in all doors, whether or not closers are scheduled.
 - 2) 5 inch (127 mm) bottom rail blocking, in doors indicated to have protection plates.
 - 3) 5 inch (127 mm) midrail blocking, in doors indicated to have exit devices.
 - 4) 4-1/2 by 10 inch (114 by 254 mm) lock blocks, in doors indicated with lock and latch sets.
 - 3. Edge Construction:
 - a. Provide fire rated door edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges:
 - 1) At hinge stiles, provide laminated edge construction with improved screw holding capability and split resistance:
 - (a) Screw holding capability: 550 lbf (2440 N) per WDMA T.M.-10.
 - 2) Pairs:
 - (a) Provide fire retardant stiles 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. Where required, provide formed steel edges and astragals with intumescent

seals. Finish steel edges and astragals with baked enamel.

4. Smoke and draft control door assemblies: Listed and labeled for smoke and draft control, based on testing according to UL 1784.

2.4 PLASTIC-LAMINATE-FACED DOORS

- A. Particleboard Core Doors with Plastic Laminate Face:
 - 1. Grade and Construction: WI custom grade, PC-5; 1-3/4 inch (44.4 mm) unless otherwise indicated.
 - 2. Core: ANSI A208.1, particleboard or MDF, made with binder containing no urea formaldehyde resin: Provide doors with glued block or structural composite lumber cores instead of particleboard cores at locations where exit devices are indicated.
 - 3. Blocking:
 - a. Provide wood blocking in particleboard core doors necessary to eliminate through bolting hardware:
 - 1) 5 inch (127 mm) top rail blocking. in all doors, whether or not closers are scheduled.
 - 5 inch (127 mm) bottom rail blocking in doors indicated to have protection plates.
 - 3) 5 inch (127 mm) midrail blocking, in doors indicated to have exit devices.
 - 4) 4-1/2 by 10 inch (114 by 254 mm) lock blocks, in doors indicated with lock and latch sets.
 - 4. Construction: Five plies. Bond stiles and rails to core, then abrasive plane entire unit before faces and crossbands are applied. Bond faces to core using a hot press.
 - 5. Crossbanding: Minimum 1/16 inch (1.6 mm) thick, low density hardwood, composite, or high density hardboard.
 - 6. Face: 3-ply AWI PC-HPDL-3 High Pressure Decorative Laminate (HPDL).
 - a. Finish: Match existing.
 - 7. Exposed Vertical and Horizontal Edges:
 - a. Material: Plastic Laminate.
 - b. Finish: Match Face.

2.5 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated:
 - 1. Comply with NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame shop drawings, BHMA-156.115-W, and hardware templates:
 - 1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
 - 2. 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. Finish bottom edges of transoms and top edges of rabbeted doors same as door stiles:
 - a. Fabricate door and transom panels with full-width, solid-lumber, rabbeted, meeting rails. Provide factory-installed spring bolts for concealed attachment into jambs of metal door frames.
- D. Openings:
 - 1. Factory cut and trim openings through doors:
 - a. Light openings: Trim openings with moldings of material and profile indicated.

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- b. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 08 80 00 Glazing.
- c. Louvers: Factory install louvers in prepared openings.
- E. Exterior Doors:
 - 1. Factory treat exterior doors with water repellent after fabrication has been completed but before shop priming or factory finishing:
 - a. Flash top of out-swinging doors with manufacturer's standard metal flashing.

2.6 SHOP PRIMING

- A. Doors for Opaque Finish: Shop prime faces, all four edges, edges of cutouts, and mortises with one coat of wood primer specified in Section 09 90 00 Painting and Coating.
- B. Doors for Transparent Finish: Shop prime faces and all four edges with stain (if required), other required pretreatments, and first coat of finish as specified in Section 09 90 00 Painting and Coating. Seal edges of cutouts and mortises with first coat of finish.

2.7 FACTORY FINISHING

- A. General: For factory finish doors, factory finish doors that are indicated to receive transparent finish, and factory finish doors where indicated in schedules or on Drawings as factory finished:
 - a. Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing:
 - 1) Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.
- B. Transparent Finish:
 - 1. Grade: Premium.
 - 2. Finish: WI's Architectural Woodwork Standards System 9, UV curable, acrylated epoxy, polyester, or urethane; refer to Drawings for finish designation.
 - 3. Staining: As selected by the Architect from manufacturer's full range.
 - 4. Effect: Semi-filled finish, produced by applying an additional finish coat to partially fill the wood pores.
 - 5. Sheen: Semigloss.
- C. Opaque Finish:
 - 1. Grade: Premium.
 - 2. Finish: AWMAC's and WI's Architectural Woodwork Standards System 10, UV curable, water based; refer to Drawings for finish designation.
 - 3. Color: As selected by the Architect from manufacturer's full range.
 - 4. Sheen: Semigloss.

PART 3 EXECUTION

3.1 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 ambient temperature and humidity conditions at occupancy levels during remainder of construction period.

3.2 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.

3.3 INSTALLATION

- A. Hardware: For installation, refer to Section 08 71 00 Door Hardware.
- B. Installation Instructions:
 - 1. Install doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated:
 - a. Install fire-rated doors according to NFPA 80.
 - b. Install smoke and draft-control doors according to NFPA 105.
- C. Job-Fitted Doors:
 - 1. Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining:
 - a. Clearances:
 - Provide 1/8 inch (3.2 mm) at heads, jambs, and between pairs of doors. Provide 3/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch (6.4 mm) from bottom of door to top of threshold unless otherwise indicated:
 - (a) Comply with NFPA 80 for fire-rated doors.
 - b. Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges.
 - c. Bevel fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) 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.

3.4 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 08 14 16

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SECTION 08710

FINISH HARDWARE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Work under this section comprises of furnishing and installing hardware specified herein and noted on drawings for a complete and operational system, including any electrified hardware components, systems, controls, wire, running of wire and hardware for aluminum entrance doors. Any door shown on the drawing and not specifically referenced in the hardware sets shall be provided with identical hardware as specified on other similar openings and shall be included in the finish hardware suppliers bid. All fire rated door shall be provided with fire rated hardware as required by local code Authority as part of the hardware supplier's base bid. The hardware supplier/installer shall verify all cylinder types specified for locking devices supplied as part of the door system with the door manufacturer and/or door supplies.
- B. The Hardware Supplier/Installer shall notify the Architect in writing of any discrepancies (five (5) days prior to bid date) that could and/or would result in hardware being supplied that is none functional, hardware specified and/or hardware that has not been specified that will result in any code violations and any door that is not covered in this specification. Failure of the hardware supplier/installer to address any such issue shall be considered acceptance of the hardware specified and all discrepancies shall be corrected at the hardware supplier/installer's expense and considered a part of their base bid. Change orders shall not be issued if deemed by the Architect and/or St. Mary's University to fall under and/or be covered as a part of the supplier/installer's base bid, due to failure to comply with this instruction notification.
- C. Items include but are not limited to furnishing and installing the following:
 - 1. Hinges Pivots
 - 2. Flush Bolts
 - 3. Exit Devices
 - 4. Locksets and Cylinders
 - 5. Push Plates Pulls
 - 6. Coordinators
 - 7. Closers
 - 8. Kick, Mop and Protection Plates
 - 9. Stops, Wall Bumpers, Overhead Controls
 - 10. Electrified Hold Open Devices
 - 11. Thresholds, Seals and Door Bottoms
 - 12. Silencers
 - 13. Miscellaneous Trim and Accessories
 - 14. Electrified Card Access Control Hardware
 - 15. Power & Communication Wire and/or Cabling
 - 16. Complete Wiring Diagrams & Door Elevation Drawings
 - 17. Installation of All Finish Hardware
- 1.02 RELATED DOCUMENTS, drawings, and general provisions of contract, including General and Supplementary Conditions, and Division 1 Specification sections, apply to this section.

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- 1.03 RELATED WORK specified elsewhere that should be examined for its effect upon this section:
 - A. Section 06200 Finish Carpentry
 - B. Section 08110 Hollow Metal Work
 - C. Section 08200 Wood Doors
 - D. Sections within 08300 Specialty Doors
 - E. Section within 08400 Entrance and Storefronts
 - F. Sections within 08800 Glazing
 - G. Sections within 09900 Painting
 - H. Division 16 Electrical (For 120V power)
- 1.04 REFERENCES SPECIFIED in this section subject to compliance as directed:
 - A. NFPA-80-1995 Standard for Fire Doors and Windows
 - B. NFPA-101-1994 Life Safety Code
 - C. ADA The Americans with Disabilities Act Title III Public Accommodations
 - D. ANSI-A 117.1 American National Standards Institute Accessible and Usable Buildings and Facilities
 - E. ANSI-A 156.5 American National Standards institute -Auxiliary Locks and Associated Products
 - F. UFAS Uniform Federal Accessibility Standards
 - G. UL Underwriter's Laboratories
 - H. WHI Warnock Hersey International, Testing Services
 - I. State and Local Codes including Authority Having Jurisdiction
 - J. Positive Pressure UL10C
 - K. IBC-2021 International Building Code
 - L. NFPA 70-National Electrical Code

1.05 SUBMITTALS

- A. HARDWARE SCHEDULES submit copies of schedule in accordance with Division 1, General Requirements. Schedule to be in vertical format, listing each door opening, including handing of opening, all hardware scheduled for opening or otherwise required to allow for proper function of door opening as intended, and finish of hardware. At doors with door closers or door controls include degree of door opening. Supply the schedules of all Finish Hardware within two (2) weeks from date purchase order is received by the hardware supplier.
- B. Submit manufacturer's cut/catalog sheets on all hardware items and any required special mounting instructions with the hardware schedule. In addition, the hardware supplier/installer shall provide written warranties, tentative date for the on-site hardware installation inspection survey specified in 3.01/F. Hardware schedules submitted without the proper documentation shall be returned to the hardware supplier/installer marked, "Rejected/Revise & Resubmit".
- C. Certification of Compliance:
 - 1. Submit any information necessary to indicate compliance to all these specifications as required.

- 2. Submit a statement from the manufacturer that electronic hardware and systems being supplied comply with the operational descriptions exactly as specified.
- D. Submit any samples necessary as required by the Architect.
- E. Templates for finish hardware items to be sent to related door and frame suppliers within three (3) working days of receipt of approved hardware schedule.
- F. Doors and Frames used in positive pressure opening assemblies shall meet UL10C in areas where this specification includes Seals for smoke door.
- G. Electronic Security Hardware: Coordinate installation of the electronic security with the General Contractor and the Architect. Provide installation and technical data to the General Contractor, Architect, and other related sub-contractor(s). Upon completion of the electronic security hardware installation, verify that all components are working properly and state in the required guarantee that this inspection has been preformed.
- H. Wiring Diagrams: Provide complete wiring diagrams for each opening requiring electrified hardware, except openings where only magnetic hold-opens are specified. Provide a copy with each hardware schedule submitted after approval. Supply a copy with delivery of hardware to job site and another copy to owner at time of job completion.

1.06 QUALITY ASSURANCE

- A. Hardware supplier/installer shall be a qualified, Factory Authorized, direct distributor of the products to be furnished. In addition, the supplier/installer shall have in their regular full-time employment an AHC or AHC /CDC and/or a person of equivalent experience (minimum fifteen (15) years in the industry) who will be made available at reasonable times to consult with the Architect/Contractor and/or St. Mary's University regarding any matters affecting the finish hardware on this project.
- All hardware used in labeled fire or smoke rated openings to be listed for those types of openings and bear the identifying label or mark indicating UL. (Underwriter's Laboratories) approved for fire. Exit devices in non-labeled openings to be listed for panic.

1.07 DELIVERY, HANDLING AND PACKAGING

- A. Furnish all hardware with each unit clearly marked and numbered in accordance with the hardware schedule. Include door and item number for each.
- B. Pack each item of hardware completes with all necessary parts and fasteners.
- C. Properly wrap and cushion each item to prevent scratches and dents during delivery and storage.
- 1.08 SEQUENCING AND SCHEDULING

Any part of the finish hardware required by the frame or door manufacturers or other suppliers that is needed in order to produce doors or frames is to be sent to those suppliers in a timely manner, so as not to interrupt job progress.

1.09 WARRANTY

All finish hardware shall be supplied with a Two- (2) year warranty against defects in materials and workmanship, commencing with substantial completion of the project except as follows:

- 1. All Closers are to have a thirty- (30) year written warranty.
- 2. All Exit Devices are to have a ten- (10) year written warranty.
- 3. All Locksets are to have a ten- (10) year written warranty.
- 4. All Continuous are to have a life of installation written warranty.

PART 2 – PRODUCTS

2.01 FASTENERS

- A. Furnish with finish hardware all necessary screws, bolts and other fasteners of suitable size and type to anchor the hardware in position for a long life under heavy or hard use. Only fasteners supplied from the hardware manufacturers and tested with the hardware shall be used to install finish hardware products specified (No Exception).
- B. Furnish fastenings where necessary with expansion shields, toggle bolts and other anchors designated by the Architect according to the material to which the hardware is to be applied and the recommendations of the hardware manufacturer. All closers and exit devices on labeled wood doors shall be through bolted if required be the door manufacturer. All thresholds shall be fastened with machine screws and lead anchors. Where specified in the hardware sets, security type fasteners of the type called for are to be supplied.
- C. Design of all fastenings shall harmonize with the hardware as to material and finish.
- D. All hardware shall be installed with the Manufacturers standard screws as provided. The use of any other type of fasteners shall not be permitted. The general contractor shall provide wood blocking in all stud walls specified and/or scheduled to receive wall stops (No Exception).

2.02 ENVIRONMENTAL CONCERN FOR PACKAGING

The hardware shipped to the job site is to be packaged in biodegradable packs such as paper or cardboard boxes and wrapping. If non-biodegradable packing such as plastic, plastic bags or large amounts of Styrofoam is utilized, then the Contractor will be responsible for the disposal of the non-biodegradable packing to a licensed or authorized collector for recycling of the non-biodegradable packing.

2.03 HINGES

A. All hinges to be of one manufacturer as hereafter listed for continuity and consideration of warranty. Provide one of the following manufacturers lves, Bommer or Stanley.

- B. Unless otherwise specified provide five-knuckle, heavy-duty, button tip, full mortise template type hinges with non-rising loose pins. Provide non-removable pins for out swinging doors at secured areas or as called for in this specification (Refer to 3.02 Hardware Sets).
- C. Exterior Door Hinges

Provide out-swinging door hinges of solid bronze, steel, aluminum or stainless steel with non-removable pins or security studs as called for in 3.02 Hardware Sets. Exterior door hinges shall be full mortise 4-1/2" X 4-1/2" or full height continuous hinges as specified in 3.02 Hardware Sets. All exterior entry doors (singles & active door leaf of pairs) shall be factory prep for a power transfer number EPT-10, No Exception.

D. Interior Door Hinges

Wrought steel, polished, and plated to match specified finish. Furnish three (3) hinges up to 90 inches high and one (1) additional hinge for every 30 inches or fraction thereof. Out-swinging doors shall be supplied with non-removable pins or security studs as specified in 3.02 Hardware Sets.

- E. At all exterior and interior doors provide hinge size $4\frac{1}{2}$ " x $4\frac{1}{2}$ " for all $1\frac{3}{4}$ " thick doors up to and including 36 inches wide. Doors over $1\frac{3}{4}$ " through $2\frac{1}{4}$ " thick, use 5" x 5" hinges.
- F. Were required to clear the trim and/or to permit the doors to swing 180 degrees furnish hinges of enough throw at all exterior and interior doors.
- G. Provide Continuous hinges on all doors over 36 inches in width, all exterior entry doors and all doors in any area that will get abnormal abuse as specified in 3.02 Hardware Sets.
- H. At all labeled door's steel or stainless steel, bearing-type hinges shall be provided unless specified with a full height Continuous Hinge in 3.02 Hardware Sets. For all doors equipped with closers provide bearing-type hinges unless specified with a full height Continuous Hinge in 3.02 Hardware Sets.
- I. Finishes
 - 1. At wood doors, hinges are to be plated to match adjacent hardware or as called for in 3.02 Hardware Sets.
 - 2. At hollow metal doors, hinges are to be brass, bronze, aluminum, steel, or stainless steel at exterior out-swinging doors, unless otherwise specified in 3.02 Hardware Sets.
- J. Continuous hinges shall be aluminum as specified in 3.02 Hardware Sets. Continuous hinges shall be Roton as specified or equal products manufactured by Select, Hager, Ives and/or Markar.

2.04 LOCK AND LOCK TRIM

A. All the locksets, latch sets, and trim to be of one manufacturer as hereafter listed for continuity of design and consideration of warranty. Locksets specified are

Schlage "ND" series with the Athens lever and are prepared to receive seven pin interchangeable cores (No Substitution).

- B. Provide metal wrought box strike boxes and curved lip strikes with proper lip length to protect trim of the frame, but not to project more than 1/8 inch beyond frame trim or the inactive leaf of a pair of doors.
- C. Mechanical Locks shall meet ANSI Operational Grade 1, Series 4000 as specified.
 - 1. Hand of lock is to be field reversible or non-handed.
 - 2. All lever trim is to be through bolted through the door.
 - 3. All pairs of doors shall be provided with a $\frac{3}{4}$ " latch bolt throw.
 - 4. All student classrooms shall be provided with the Security Classroom function lock ND75BD.
 - 5. Provide all Student Rest Room doors with a classroom function deadlock.
 - 6. Provide Schlage "ND40 OS-OCC" series privacy lock at all private staff rest rooms, Nursing stations, and shared restrooms in dormitories. Emergency Keys shall be turned over to the Facilities Department and not delivered to the general contractor at the project site.

2.05 CYLINDERS AND KEYING

- Provide locks and Exit devices requiring cylinders with 7 pin interchangeable A. core restricted key section to match the existing system and comply with performance requirements of ANSI A156.5 (No Substitution). All keys shall be of nickel silver material only. All locks are to be factory keyed to the Existing Best Coremax Master key system (which is maintained by George Caballero of Architectural Division 8) as directed by St. Mary's University. The hardware supplier shall meet with the Architectural Division 8 Representative and St. Mary's University locksmith at the project site to determine all permanent keying requirements. Keying meeting shall be set up by the hardware supplier no later than 90 days prior to the date the permanent cores are required on the jobsite. Provide One (1) Knox Box as required by the local Fire Marshall. George Caballero with Architectural Division 8 can be reached at 210-668-8803 and GCaballero@archdiv8.com. The contractor shall, as required by the local Fire Marshall and St. Mary's University, install the Knox Box. Provide two (2) Knox Padlocks required for gates, by the local Fire Marshall.
- B All locks, cylinders and Exit devices shall be fitted with temporary keyed construction cores provided by the St. Mary's University locksmith for the duration of construction.
- C. Cylinders shall be keyed and maintained by Architectural Division 8 as directed by St. Mary's University. Provide a total of one- (1) key (cut or blank) per cylinder core. Keys shall be factory (Architectural Division 8) cut and/or blank keys as instructed by St. Mary's University in the permanent keying meeting. The

hardware supplier shall be required to provide additional cut keys in lieu of key blanks as required by St. Mary's University.

- D. Permanent cores shall be factory (Architectural Division 8) stamped on the side of the core with the key symbol.
- E. The hardware supplier shall have all permanent keys, cores and bittings shipped directly from the Manufacturer (Architectural Division 8) to the St. Mary's University, Attention: Locksmith, Contact St. Mary's University for the exact shipping address required prior to order entry.
- F. The hardware supplier shall provide additional material as follows for the Facilities Departments use.

1)Copy of the factory (Architectural Division 8) generated bitting list which shall include. Obtain a cost for this bitting list from George Caballero at Architectural Division 8 prior to project bid.

2.06 EXIT DEVICES

- A. All exit devices and trim, including electrified items, to be of one manufacturer as hereafter listed and in the hardware sets for continuity of design and consideration of warranty: electrified devices and trim to be the same series and design as mechanical devices and trim. All exit devices shall be capable of being field modified to accept electrified kits without the purchase of new devices.
- B. Exit Devices to be "UL" listed for life safety. All exit devices for labeled doors shall have "UL" label for "Fire Exit Hardware". All devices mounted on labeled wood doors are to be through-bolted or per the manufacturer's listing requirements. All devices shall conform to NFPA 80 and NFPA 101 requirements.
- C. All exit devices to be of a heavy duty, chassis mounted design, with one-piece removable covers, eliminating necessity of removing the device from the door for standard maintenance and keying requirements.
- D. All trims to be through bolted to the lock stile case and utilize pull handles. Active leaf shall utilize NL trim. Inactive leaf shall be provided with DT trim.
- E. Science Lab doors shall swing in the direction of egress and be equipped with exit devices. Science lab exit devices shall be the "NL" function with pull handles.
- F. Exit Devices to be the modern push rail design. All exit devices shall be installed and/or mounted with sex bolts supplied by the device manufacturer. All none fire devices shall be provided with hex key dogging. Residence halls shall have no
- G. All devices shall carry a ten- (10) year warranty against manufacturing defects and workmanship.
- H. Exit Devices shall be Von Duprin 99 series (No Substitutions).
- 2.07 SURFACE MOUNTED DOOR CLOSERS

- A. All closers for this project shall be the products of a single manufacturer for continuity of design and consideration of warranty. All door closers shall be mounted as to achieve the maximum degree of opening (trim permitting).
- B. All closers to be heavy duty, surface-mounted, fully hydraulic, rack and pinion action with high strength cast iron cylinder to provide control throughout the entire door opening cycle. All door closers shall have been tested and passed a documented ten- (10) million cycle tests.
- C. Size all closers in accordance with the manufacturer's recommendations at the factory.
- D. All closers to have adjustable spring power sizes 1 or 2 through 4 or 6 and separate tamper resistant, brass, non-critical regulating screw valves for closing speed, latching speed and back-check control as a standard feature unless specified other wise.
- E. All closer covers to be rectangular, full cover type of non-ferrous, non-corrosive material painted to match closer. Provide closer covers only if provided as a standard part of the door closer package.
- F. Closers shall have heavy-duty arms. All closer arms shall be of enough length to accommodate the reveal depth and to insure proper installation. The hardware supplier shall provide all required brackets, spacers or filler plates as required by the manufacture for a proper and functional installation as part of their base bid.
- G. Supply appropriate arm assembly for each closer so that closer body and arm are mounted on non-public side of door opening and on the interior side of exterior openings, except where required otherwise in the hardware sets.
 - 1. All parallel arm mounted closers to be factory indexed to ensure proper installation and be installed with spacers as supplied with the door closer.
 - 2. Furnish heavy-duty cold forged parallel arms for all parallel arm mounted closers.
- H. Provide closers with special application and heavy-duty arms as specified in the hardware sets or as otherwise called for to insure a proper operating, long lasting opening. Drop plates and any additional brackets required for the proper installation of the door closer shall be included in the hardware supplier/installer's base bid.
- I. Finish: Powder Coated finish shall match other hardware.
- J. Door closers shall be furnished and installed with sex bolts as provided by the manufacturer. Self drilling and tapping screws shall not be used unless provided as standard fasteners by the manufacturer.
- K. All door closers shall have a final field adjusted by the hardware supplier/installer to insure the proper closing speed, latch speed and back check just prior to the project completion.
- L. The hardware supplier/installer shall document all frames that are found to be installed without the required welded in place reinforcements for the parallel arm

brackets. Documentation shall be turned over to the Architect and St. Mary's University locksmith shop. No exceptions.

L. Closers shall be LCN XP4040 series (No substitutions). Refer to Hardware Sets 3.02.

2.08 DOORSTOPS AND HOLDERS

- A. Doorstops are to be furnished for every door leaf. Every door is to have a floor, wall, or an overhead stop.
- B. Place doorstops in such a position that they permit maximum door swing, but do not present a hazard of obstruction. Furnish floor strikes for floor holders of proper height to engage holders of doors.
- C. Where overhead stops and holders are specified, or otherwise required for proper door operation, they are to be heavy duty and of extruded brass, bronze or stainless steel with no plastic parts as specified. The General Contractor shall provide wood blocking in all stud walls specified and scheduled to receive wall stops.
- D. Finish: Same as other hardware where available.
- E. Acceptable Products
 - 1. Floor and wall stop as listed in hardware sets. Equivalent products as manufactured by Ives, Rockwood, Glynn Johnson and Trimco are acceptable.

2.09 PUSH PLATES, DOOR PULLS, AND KICKPLATES

- A. All push plates, door pull, kick plates and other miscellaneous hardware as listed in hardware sets. Equivalent products as manufactured by Ives, Rockwood, Glynn Johnson and Trimco are acceptable.
- B. Kick plates to be 10 inches high and Mop plates to be 6 inches high, both by 2 inches and 1 inch less than door width (LDW) as specified. They are to be of 16-gauge thick stainless steel. For door with louvers or narrow bottom rails, kick plate height to be 1 inch less dimension shown from the bottom of the door to the bottom of the louver or glass.
- C. Where required armor plates, edge guards and other protective hardware shall be supplied in sizes as scheduled in the hardware sets.
- D. Finish: Same as other hardware where available.

2.10 FLUSH BOLTS AND COORDINATORS

- A. Provide Flush bolts with Dust Proof Strikes as indicated in the individual hardware sets by lves, Rockwood, Glynn Johnson and Trimco are acceptable. All flush bolts provided on fire rated doors shall be the constant latching type. Finish shall match the adjacent hardware.
- 2.11 THRESHOLDS AND SEALS

- A. Provide materials and finishes as listed in hardware sets. Equivalent product by National Guard Products, Zero, and Reese are acceptable. All thresholds must be in accordance with the requirements of the ADA and ANSI A117.1.
- B. Provide thresholds with 226 stainless steel sleeve anchors and "V3" full body strength fill. Supply all necessary anchoring devices for weather strip and sound seal.
- C. Seals shall comply with requirements of UL10C. All thresholds, door bottoms and weather strip inserts shall be a silicone-based product as specified in 3.02 Hardware Sets.
- D. Seals shall comply with the requirements of the Wood Door Manufacturer's certification requirements.

2.12 FINISHES

- A. Finishes for all hardware are as required in this specification and the hardware sets.
- B. Special care is to be taken to make uniform the finish of all various manufactured items.

2.13 DOOR SILENCERS

A. Provide door silencers at all openings without gaskets. Provide two- (2) each at pairs of doors and three- (3) or four- (4) each for single doors depending on frame height.

2.14 PROPRIETARY PRODUCTS

- A. References to specific products are used to establish quality standards of utility and performance. Unless otherwise approved provide only the specified product.
- B. All other materials, not specifically described, but required for a complete and proper finish hardware installation, are to be selected by the Contractor, subject to the approval of the Architect and St. Mary's University.
- C. St. Mary's University reserves the right to approve all the substitutions proposed for this specification. All requests for substitution to be made <u>prior to bid</u> in accordance with Division 1, General Requirements, and are to be in writing, hand delivered to the owner. Two (2) copies of the manufacturer's brochures and a physical sample of each item in the appropriate design and finish shall accompany requests for substitution.

PART 3 - EXECUTION

3.01 INSTALLATION AND SERVICE ITEMS OF FINISH HARDWARE/CARD ACCESS

A. All finish hardware shall be installed by the hardware supplier with full time company employees who are experienced. Hardware installers shall be factory trained in finish hardware installation and have at least ten (10) years experience in hardware installation. No, hardware shall be installed until the completion of a pre-installation meeting between the contractor, hardware Manufacturers representative, the hollow metal supplier, the wood door supplier, and any other

FINISH HARDWARE 08 71 00- 10 affected trade. The finish hardware supplier/installer shall be responsible for the proper installation and function of all doors and hardware. The hardware supplier/installer shall notify and document any frame that has been installed incorrectly and/or damaged that would affect the functional operation of the hardware specified.

- B. The hardware supplier/installer's office and warehouse shall be located within a one hundred (100) mile radius of the project site as to better service the general contractor and St. Mary's University during this project.
- C. Check hardware against the reviewed hardware schedule upon delivery. Store the hardware in a dry and secure location to protect against loss and damage.
- D. Install finish hardware in accordance with approved hardware schedule and manufacturers' printed instructions. Pre-fit hardware before finish is applied to door; remove and reinstall after finish is complete and dry. Install and adjust hardware so that parts operate smoothly, close tightly, and do not rattle.
- E. Mortise and cutting to be done neatly, and evidence of cutting to be concealed in the finished work. Protect all Finish hardware from scratching or other damage. All finish hardware specified and/or supplied shall be installed with the manufacturers standard screw and/or anchoring devices supplied. All finish hardware installed with none-standard screws and/or anchoring devices shall be completely replaced at the supplier/installers expense.
- F. The hardware supplier/installer, general contractor, representatives of the lock, exit device and closer manufacturers shall after three (3) months of St. Mary's University acceptance of the facility perform an onsite survey of the finish hardware. Any item of finish hardware found to be defective or out of adjustment shall be replaced or adjusted for the proper function and operation of the door assembly at the supplier/installer's expense. The Hardware Supplier & Installer shall provide a written report of all affected items to the Architect and St. Mary's University (No Exceptions). The scheduled inspection date for the onsite inspection and adjustment of finish hardware shall be provided to the Architect as a part of the general contractor and hardware supplier/installer's close-out documentation for this project.
- G. The hardware supplier/installer shall complete all punch list items within fifteen (15) days after receipt of the punch list. Failure to fully complete all punch list items will result in liquidated damages being assessed the hardware supplier/installer.

3.02 HARDWARE SETS

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131033 Hardwa		20338 Version 1			
For use	on Doc	or #(s):			
212A					
QTY	each S	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	ENTRANCE LOCK	ND53HD ATH	626	SCH
1	EA	PERMANENT CORE	CORMAX CORE AS REQ TO MATCH EXISTING KEY SYSTEM	626	BES
1	EA	WALL STOP	WS406/407CCV	626	IVE
1	EA	GASKETING	188S H & J (USE SILENCERS ON NON-RATED OPENINGS)	BK	ZER
Hardwa For use	are Grou	ıp No. 341 or #(s):			
212B		<i>(</i> (0):			
Provide	each S	GL door(s) with the following:			
QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PRIVACY LOCK W/ OUTSIDE INDICATOR	ND40S ATH OS-OCC	626	SCH
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ TBSRT	689	LCN
1	EA	WALL STOP	WS406/407CCV	626	IVE
1	EA	GASKETING	188S H & J (USE SILENCERS ON NON-RATED OPENINGS)	BK	ZER
Hardwa	are Grou	ıp No. 701C			
For use 215	e on Doc	or #(s):			
Provide	each S	GL door(s) with the following:			
QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PANIC HARDWARE	99-L-07-SNB LENGTH AS REQ	626	VON
1	EA	SFIC RIM CYLINDER	80-159	626	SCH
1	EA	PERMANENT CORE	CORMAX CORE AS REQ TO MATCH EXISTING KEY SYSTEM	626	BES
1	EA	SURFACE CLOSER	4040XP SCUSH TBSRT	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	626	IVE
1	EA	GASKETING	188S H & J (USE SILENCERS ON NON-RATED OPENINGS)	BK	ZER

END OF SECTION

SECTION 08 71 13 - POWER DOOR OPERATORS

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. Operators for swinging doors.
 - 2. Controllers, actuators, and safety devices.
 - 3. Maintenance.
- B. Related Sections:

1.3 **DEFINITIONS**

- A. Activation Device: Device that sends an electrical signal to door operator to open door when actuated.
- B. Knowing Act: Consciously initiating the opening of a power-operated door using acceptable methods, including wall-mounted switches such as push plates and controlled access devices such as keypads, card readers, and key switches.

1.4 **REFERENCE STANDARDS**

- A. AAMA 611 Specification for Anodized Architectural Aluminum; 2024.
- B. ADA Standards 2010 ADA Standards for Accessible Design; 2010.
- C. BHMA A156.10 Power Operated Pedestrian Doors; 2024.
- D. ITS (DIR) Directory of Listed Products; Current Edition.
- E. NFPA 70 National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- F. NFPA 101 Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. UL (DIR) Online Certifications Directory; Current Edition.
- H. UL 325 Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate power door operators with balance of door hardware and electrical work required for each affected door opening.
 - 1. Templates: Check other sections' shop drawings to confirm that adequate provisions are in place for locating and installing power door operators.
 - 2. Electrical System Roughing-in: Coordinate layout and installation of power door operators with connections to power supplies, remote activation devices, and electric door latching hardware.
- B. Preinstallation Meeting: Convene a preinstallation meeting one week prior to commencing work of this section; require attendance by affected installers and the following parties.
 - 1. Architect.
 - 2. Installer's Architectural Hardware Consultant (AHC).
 - 3. Owner's Security Consultant.

1.6 SUBMITTALS

A. Refer to Section 01 33 00 - Submittal Procedures for submittal procedures.

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- B. Shop Drawings:
 - 1. Indicate layout and dimensions; head, jamb, and sill conditions; elevations; components, anchorage, recesses, materials, and finishes, electrical characteristics and connection requirements.
 - 2. Identify installation tolerances required, assembly conditions, routing of service lines and conduit, and locations of operating components and boxes.
- C. Product Data: Provide data on system components, sizes, features, and finishes.
- D. Samples: Two samples of exposed to view hardware and attachment hardware.
- E. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention, and manufacturer's hardware and component templates.
- F. Manufacturer's qualification statement.
- G. Installer's qualification statement.
- H. Maintenance contract.
- I. Project Record Documents: Record actual locations of concealed equipment, services, and conduit.
- J. Maintenance Data: Include manufacturer's parts list and maintenance instructions for each type of hardware and operating component.
- K. Specimen warranty.
- L. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Refer to Section 01 60 00 Product Requirements for additional provisions.
 - 2. Wrenches and other tools required for maintenance of equipment.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience, and a member of AAADM.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years documented experience and approved by manufacturer.

1.8 WARRANTY

- A. Refer to Section 01 77 00 Closeout Procedures for additional warranty requirements.
- B. Manufacturer Warranty: Provide 2-year manufacturer warranty for components of power door operators. Complete forms in Owner's name and register with manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Specifications are based on the products identified as Basis of Design. Manufacturers listed whose products meet or exceed the specifications are approved for use in the Work. Other manufacturers must have a minimum of five (5) years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered.
 - 1. Operators for Swinging Doors:
 - a. ASSA ABLOY Entrance Solutions: www.besam-usa.com/#sle.
 - b. Detex Corporation: www.detex.com/#sle.
 - c. DORMA USA, Inc: www.dorma.com/#sle.
 - d. LCN, an Allegion brand: www.allegion.com/us/#sle.
 - e. Horton Automatics: www.hortondoors.com/#sle.
 - f. NABCO Entrances Inc: www.nabcoentrances.com/#sle.
 - g. Portalp USA: www.portalpusa.com/#sle.
 - h. Record-USA: www.recorddoors.com/#sle.

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- i. Stanley Access Technologies: www.stanleyaccess.com/#sle.
- B. Substitutions: Refer to Section 01 25 13 Product Substitution Procedures.

2.2 POWER DOOR OPERATORS - GENERAL

- A. Electrically Operated or Controlled Hardware: Provide necessary power supplies, relays, and interfaces as required for proper operation; provide wiring between control components and to building power connection in compliance with NFPA 70.
- B. Comply with ADA Standards for egress requirements.
- C. Comply with NFPA 101 and requirements of authorities having jurisdiction; provide units selected for actual door weight and for light pedestrian traffic unless otherwise indicated.
- D. Exterior and Vestibule Doors: Provide equipment suitable for ambient operating temperature range of minus 20 to plus 140 degrees F (minus 29 to plus 60 degrees C).
- E. System Integration: Integrate operator functionality with other systems as required for a complete working installation.

2.3 OPERATORS FOR SWINGING DOORS

- A. Door Operator: Electromechanical.
 - 1. Applications: Include operators for single and double doors.
 - 2. Electromechanical Operators: Self-contained, chain driven, with release clutch.
 - 3. Speed Control: Variable, field-adjustable opening and closing cycles.
 - 4. Functionality: Full-power open, spring close operation.
 - a. Full-Power Operators: Comply with BHMA A156.10; safeties required.
 - Comply with UL 325; acceptable evidence of compliance includes UL (DIR) or ITS (DIR) listing or test report by testing agency acceptable to authorities having jurisdiction.
 - Force Required to Set Door in Motion When Unpowered: 30 lbf (133 N), maximum, measured at 1 inch (25.4 mm) from the latch edge of the door at any point in the closing cycle.
 - 3) Signage: Provide signage in accordance with BHMA A156.10.
 - 5. Mounting: Surface mounted overhead.
 - 6. Components:
 - a. Header Case: Manufacturer's standard extruded aluminum profile containing door operator and door mounting components.
 - b. Motor and Gearbox Assembly: Manufacturer's standard sealed motor, gearbox, and drive belt.
 - 7. Power Supply Units: Self-contained, electrically operated, and independent of door operator.
 - 8. Actuators: Manufacturer's standard.
 - a. Push-Side Actuator: Mat switch.
 - b. Pull-Side Actuator: Mat switch.
 - 9. Pull-Side Safety: Door mounted.

2.4 CONTROLLERS, ACTUATORS, AND SAFETY DEVICES

- A. Controllers: Manufacturer's standard for products specified.
 - 1. Provide microprocessor operated controller for each door.
- B. Actuators: Manufacturer's standard for products specified and as specified below.
 - 1. Comply with BHMA A156.10 for actuator and safety types and zones.
 - 2. Push Plate Actuator: Standard, wall mounted, surface mounted, momentary contact type; satin stainless steel plate; _____ inches (_____ mm) diameter; labeled PUSH.
- C. Safety Devices: Manufacturer's standard units recommended for project applications and conditions.

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- 1. Comply with BHMA A156.10 for actuator and safety types and zones.
- 2. Photo-Electric Actuator/Safety: Horizontal single ray device, with aluminum housing for light source and relay units.
- 3. Swinging Door Safety Device: Door-mounted proximity detector device arranged to prevent operation of door when persons or obstructions are in the swing zone.

2.5 ELECTRICAL CHARACTERISTICS AND COMPONENTS

- A. Electrical Characteristics: Refer to Basis of Design product.
- B. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Enclose terminal lugs in terminal box sized to NFPA 70.
- C. Disconnect Switch: Factory mount disconnect switch in control panel.

2.6 FINISHES

- A. Aluminum Finishes: Manufacturer's standard.
 - 1. Class II Natural Anodized Finish: Clear anodic coating; AAMA 611 AA-M12C22A31, minimum dry film thickness (DFT) of 0.4 mil, 0.0004 inch (0.010 mm).

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify installation conditions including, but not limited to the following: opening sizes, floor conditions, plumb and level mounting surfaces.
- B. Verify that surfaces are ready to receive work and dimensions are as indicated on shop drawings.
- C. Verify that electric power is available, in the correct location, and of the correct characteristics.

3.2 INSTALLATION

- A. Coordinate installation of components with related and adjacent work.
- B. Install equipment in accordance with manufacturer's instructions.
- C. Provide for thermal expansion and contraction of door and frame units and live and dead loads that may be transmitted to operating equipment.
- D. Provide for dimensional distortion of components during operation.
- E. Install pneumatic lines and door power units in a manner to prevent condensation or freezing.

3.3 ADJUSTING

A. Adjust door equipment for correct function and smooth operation.

3.4 CLEANING

A. Remove temporary protection, clean exposed surfaces.

3.5 CLOSEOUT ACTIVITIES

A. Demonstrate toOwner's Designated Representative (ODR) equipment operation, operating components, adjustment features, and lubrication requirements.

3.6 MAINTENANCE

- A. Refer to Section 01 77 00 Closeout Procedures for additional requirements relating to maintenance service.
- B. Provide a separate maintenance contract for specified maintenance service.
- C. Provide service and maintenance of operating equipment for one year from Date of Substantial Completion, at no extra charge to Owner.

END OF SECTION 08 71 13

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SECTION 08 80 00 - GLAZING

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: Requirements including but not limited to:
 - 1. Film Overly (F).
 - 2. Float Glass (GG).
 - 3. Laminated Galzing (GL).
 - 4. Glazing Sealants.
 - 5. Accessories necessary for a complete installation.

1.3 REFERENCE STANDARDS

- A. {RSTEMP#undefined}
- B. ANSI Z97.1 American National Standard for Safety Glazing Materials Used in Buildings -Safety Performance Specifications and Methods of Test; 2015 (Reaffirmed 2020).
- C. ASTM C920 Standard Specification for Elastomeric Joint Sealants; 2018.
- D. ASTM C1021 Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008 (Reapproved 2023).
- E. ASTM C1036 Standard Specification for Flat Glass; 2021.
- F. ASTM C1087 Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2023.
- G. ASTM C1172 Standard Specification for Laminated Architectural Flat Glass; 2019.
- H. ASTM C1330 Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2018.
- I. ASTM E1300 Standard Practice for Determining Load Resistance of Glass in Buildings; 2016.
- J. ASTM E1886 Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials; 2019.
- K. ASTM E1996 Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes; 2023.
- L. NFPA 80 Standard for Fire Doors and Other Opening Protectives; 2025.
- M. NFPA 252 Standard Methods of Fire Tests of Door Assemblies; 2022.
- N. NFRC 100 Procedure for Determining Fenestration Product U-factors; 2023.
- O. NFRC 200 Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence; 2014, with Errata (2017).
- P. NFRC 300 Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems; 2017.

1.4 **DEFINITIONS**

- A. Glass Thickness: Indicated by thickness designations in millimeters according to ASTM C1036.
- B. Interspace: Space between lites of an insulating glass unit.

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1.5 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design glass panels including comprehensive engineering analysis by a qualified professional engineer lawfully licensed in the State of Texas, using performance requirements and design criteria indicated.
- B. Installed Glazing: Design glazing systems to withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- C. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined according to the BIBC and ASTM E1300.
 - 1. Design Wind Pressures: As indicated on Structural Drawings.
 - 2. Design Wind Pressures: Determine design wind pressures applicable to Project according to ASCE/SEI 7, based on heights above grade indicated on Drawings.
 - a. Wind Design Data: As indicated on Structural Drawings.
 - b. Basic Wind Speed: As indicated on Structural Drawings.
 - c. Importance Factor: As indicated on Structural Drawings.
 - 3. Exposure Category: As indicated on Structural Drawings.
 - 4. Design Snow Loads: As indicated on Structural Drawings.
 - 5. Thickness of Patterned Glass: Base design of patterned glass on thickness at thinnest part of the glass.
 - 6. Probability of Breakage for Sloped Glazing: For glass surfaces sloped more than 15 degrees from vertical, design glass for a probability of breakage not greater than 0.001.
 - 7. Maximum Lateral Deflection: For glass supported on all four edges, limit center of glass deflection at design wind pressure to not more than 1/50 times the short side length or 1 inch (25 mm), whichever is less.
- D. Windborne Debris Impact Resistance: Exterior glazing shall comply with -protection testing requirements in ASTM E1996 for when tested according to ASTM E1886. Test specimens shall be no smaller in width and length than glazing indicated for use on Project and shall be installed in same manner as glazing indicated for use on Project.
 - 1. Large Missile Test: For glazing located within 30 feet (9.1 m) of grade
 - 2. Small Missile Test: For glazing located more than 30 feet (9.1 m) above grade
- E. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II
- F. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
 - 1. For monolithic glass lites, properties are based on units with lites 6 mm thick.
 - 2. For laminated glass lites, properties are based on products of construction indicated.
 - 3. For insulating glass units, properties are based on units of thickness indicated for overall unit and for each lite.
 - 4. U-Factors: Center of glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F (W/sq. m x K).
 - 5. Solar Heat Gain Coefficient and Visible Transmittance: Center of glazing values, according to NFRC 200 Nand based on LBL's WINDOW 5.2 computer program.
 - 6. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

1.6 SUBMITTALS

A. Product Data: Technical data for each type of product including recommended installation and cleaning procedures.

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- B. Glass Samples: For each type of glass required. Prepare samples from same material to be used for Work.
- C. Glazing Schedule: List glass types and thickness for each size opening and location. Use same designations indicated on Drawings.
- D. Delegated Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- E. Product Certificates: Submit glass product certificates required by Code.
 - 1. Glass Manufacturer Certificate: The glass manufacturer shall submit a letter certifying it has reviewed the glazing details proposed for the project, including the use of gaskets and sealants, and that each product furnished is recommended for the application shown and compliance with the Code.
- F. Thermal Stress and Wind Load Analyses: Submit the following from the glass manufacturer:
 - 1. Thermal stress analysis for each exterior glass unit type, each building elevation. The analysis shall clearly indicate the expected service temperature ranges and the effects of partial and full shading on the glass.
 - a. Attach to the thermal stress analysis a statement from the glass manufacturer that based upon this analysis that the resulting thermal stresses will not reduce the specified statistical probability of breakage.
 - 2. Wind load analysis for each glass unit type, each building elevation. The analysis shall indicate the statistical probability of breakage at the design wind pressure does not exceed the specified statistical probability of breakage.
- G. Product Test Reports: Submit test reports for insulating glass and glazing sealants, for tests performed by a qualified testing agency.
 - 1. Glazing Sealants: Provide test reports based on testing current sealant formulations within previous 36 month period.
 - 2. Glazing Sealants: Preconstruction adhesion and compatibility test report.

1.7 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Building Code: Comply with applicable requirements of the IBC for glazing.
 - 2. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC or manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
 - As a minimum provide Category II materials complying with testing requirements in 16 CFR 1201 (Consumer Product Safety Commission Safety Standard for Architectural Glazing Materials, published in the Code of Federal Regulations) and ANSI Z97.1.
 - b. Permanently mark safety glass with certification label of Safety Glazing Certification Council.
 - 3. Insulating Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.
 - 4. Glazing Publications: Comply with published recommendations of glass product organizations
 - a. GANA: Glazing Manual.
 - b. IGMA: SIGMA TM-3000 Vertical Glazing Guidelines.
 - c. GANA: Laminated Glazing Reference Manual.
 - d. AAMA: AAMA GDSG-1 Glass Design for Sloped Glazing.
 - e. AAMA: TIR A7 Sloped Glazing Guidelines.
 - f. IGMA for Sloped Glazing: IGMA TB-3001 Guidelines for Sloped Glazing.

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- g. IGMA for Insulating Glass: SIGMA TM-3000 North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use.
- 5. Fire Rated Door Assemblies: Assemblies complying with NFPA 80 listed and labeled by UL for fire ratings indicated, based on testing according to NFPA 252.
- 6. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than the thickness indicated.
 - a. Minimum Glass Thickness for Exterior Lites: 6 mm.
 - b. Thickness of Tinted Glass: Provide same thickness for each tint color indicated.
- 7. Strength: Where annealed float glass is indicated, provide annealed float glass, heat strengthened float glass, or fully tempered float glass necessary to comply with performance requirements.
 - a. Where heat strengthened float glass is indicated, provide heat strengthened float glass or fully tempered float glass necessary to comply with performance requirements.
 - b. Where fully tempered float glass is indicated, provide fully tempered float glass.
- B. Manufacturer Qualifications for Insulating Glass Units with Sputter Coated, Low E Coatings: Insulating glass manufacturer who is approved and certified by coated glass manufacturer.
- C. Installer Qualifications, Glazer: Experience entity having minimum 5 years documented experience and who employs glass installers certified under the National Glass Association's Certified Glass Installer Program.
- D. Installer Qualifications, Decorative Film: Experience entity having minimum 5 years documented experience in the installation of glass films.
- E. Source Limitations for Glass and Glass Accessories: Obtain each type of glass and glass accessories from a single source.
- F. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.
- G. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C1021 to conduct the testing indicated.
- H. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution.
- I. Install glazing in mockups specified in to match glazing systems required for Project, including glazing methods.
 - 1. Subject to compliance with requirements, approved mockups may become part of the completed work if undisturbed at time of Substantial Completion.
- J. Pre-Construction Adhesion and Compatibility Testing: Test each glass product, tape sealant, gasket, glazing accessory, and glass framing member for adhesion to and compatibility with elastomeric glazing sealants.
 - 1. Testing is not required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.
 - 2. Use ASTM C1087 to determine whether priming and other specific joint-preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to glass, tape sealants, gaskets, and glazing channel substrates.
 - 3. Test no fewer than eight Samples of each type of material, including joint substrates, shims, sealant backings, secondary seals, and miscellaneous materials.
 - 4. Schedule enough time for testing and analyzing results to prevent delaying the Work.
 - 5. For materials failing tests, submit sealant manufacturer's written instructions for corrective measures including the use of specially formulated primers.
- K. Pre-Installation Conference: Conduct conference at site.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
- B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by manufacturer.
- D. Exercise exceptional care to prevent edge damage to glass, and damage/deterioration to coating on glass.
- E. Comply with insulating glass manufacturer's written instructions for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.9 FIELD CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
 - Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or are below 40 degrees F (4.4 degrees C).
- B. Field Measurements: Verify actual dimensions of openings and construction contiguous with decorative glass by field measurements before fabrication.

1.10 COORDINATION

A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

1.11 WARRANTY

- A. Coated Glass Products: Written warranty signed by manufacturer in which glass manufacturer agrees to replace coated glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.
 - 1. Warranty Period: Ten (10) years from date of Substantial Completion
- B. Laminated Glass: Written warranty signed by manufacturer in which manufacturer agrees to replace laminated glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.
 - 1. Warranty Period: Ten (10) years from date of Substantial Completion.
- C. Insulating Glass: Written warranty signed by manufacturer in which manufacturer agrees to replace insulating glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.
 - 1. Warranty Period: Ten (10) years from date of Substantial Completion.

- D. Glass Film: Written warranty signed by glass film manufacturer and installer in which manufacturer and installer agree to replace glass film that crack, peel, delaminate, discolor, change appearance, or failure to meet solar criteria within specified warranty period.
 - 1. Warranty Period: Five (5) years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
 - 1. Glass:
 - a. Cardinal Glass Industries: www.https://www.cardinalcorp.com.
 - b. Guardian Industries: www.guardianglass.com.
 - c. Pilkington North America, a subsidiary of Nippon Sheet Glass Co., Ltd.: www.pilkington.com.
 - d. Vetrotech Saint-Gobain International AG: www.vetrotech.com.
 - e. Vitro Architectural Glass: www.vitroglazings.com.
 - 2. Glass Film:
 - a. 3M Construction Markets Division: www.3m.com.
 - b. Bekaert Specialty Films: www.solargard.com.
 - c. Eastman, a subsidiary of CPFilms, Inc.
 - d. Solyx Films, LLC.
- B. Substitutions: Refer to Section 01 25 13 Product Substitution Procedures.
 - 1. Manufacturers and fabricators not listed must have a minimum of 5 years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered. Submit as a substitution.

2.2 FABRICATORS

A. Manufacturer-certified fabricators.

2.3 MATERIALS

- A. Clear, Annealed, Float Glass: ASTM C1036, Type I, Class 1 (clear), Quality-Q3.
- B. Tinted Annealed Float Glass: ASTM C1036, Type I, Class 2 (tinted), Quality-Q3.
- C. Glass Film Overlay: Translucent, dimensionally stable, cast PVC film, 2 mil (0.05 mm) minimum thickness, with pressure sensitive, clear adhesive back for adhering to glass and releasable protective backing.

2.4 LAMINATED GLAZING

- A. Laminated Glass: ASTM C1172. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.
 - 1. Construction: Laminate glass with polyvinyl butyral interlayer, ionomeric polymer interlayer, or cast in place and cured transparent resin interlayer, as scheduled, to comply with interlayer manufacturer's written instructions.
 - 2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
 - 3. Interlayer Thickness: As required.
 - 4. Interlayer Color: Clear unless otherwise indicated
- B. Windborne Debris Impact Resistant Laminated Glass: Comply with requirements for laminated glass except laminate glass with ionomeric polymer interlayer to comply with interlayer manufacturer's written instructions:

2.5 GLASS FILM

A. Performance Requirements:

- 1. Scratch resistant coating that, after fully cured, facilitates cleaning without damaging or scratching film.
- 2. Optical Distortion: When viewed from a distance of 10 feet at angles up to 45 degrees from either side of the glass, there is no discernible distortion.
- 3. Edges: Seal edges except when the film is applied with a lacquer that prevents moisture or free water from penetrating between the film and the glass.
- B. Coating: Provide coating with uniform finish, without noticeable pin holes, streaks, thin spots, scratches, or banding.
 - 1. Light Transmission:
 - a. Maximum Variation across Width and Length: Not to exceed 1 percent.
 - b. Variation in Transmission across Width and Length: Not to exceed 2 percent.
- C. Rate of Change of Total Transmission across Width and Length: Not to exceed 1 percent in 4 inches.

2.6 GLAZING ACCESSORIES

- A. Compatibility: Provide glazing sealants compatible with one another and with other materials in contact, including glass products, seals of insulating glass units, and glazing channel substrates, under conditions of service and application, demonstrated by sealant manufacturer based on testing and field experience.
- B. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
- C. Colors of Exposed Glazing Sealants: As selected by Architect.
- D. Glazing Sealant: Neutral curing silicone glazing sealant complying with ASTM C920, Type S, Grade NS, Class 100/50, Use NT
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Dow Corning Corporation.
 - b. GE Construction Sealants; Momentive Performance Materials Inc.
 - c. May National Associates, Inc.; a subsidiary of Sika Corporation.
 - d. Pecora Corporation.
 - e. Sika Corporation.
- E. Glazing Sealant: Neutral curing silicone glazing sealant complying with ASTM C920, Type S, Grade NS, Class 50, Use NT.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BASF Corporation; Construction Systems.
 - b. Dow Corning Corporation.
 - c. GE Construction Sealants; Momentive Performance Materials Inc.
 - d. May National Associates, Inc.; a subsidiary of Sika Corporation.
 - e. Pecora Corporation.
 - f. Polymeric Systems, Inc.
 - g. Sika Corporation.
- F. Glazing Sealant: Neutral curing silicone glazing sealant complying with ASTM C920, Type S, Grade NS, Class 25, Use NT.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bostik, Inc.
 - b. Dow Corning Corporation.
 - c. GE Construction Sealants; Momentive Performance Materials Inc.

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- d. May National Associates, Inc.; a subsidiary of Sika Corporation.
- e. Polymeric Systems, Inc.
- f. Schnee-Morehead, Inc., an ITW company.
- g. Sika Corporation.
- G. Glazing Sealant: Acid curing silicone glazing sealant complying with ASTM C920, Type S, Grade NS, Class 25, Use NT.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BASF Corporation; Construction Systems.
 - b. Bostik, Inc.
 - c. Dow Corning Corporation.
 - d. GE Construction Sealants; Momentive Performance Materials Inc.
 - e. May National Associates, Inc.; a subsidiary of Sika Corporation.
 - f. Pecora Corporation.
 - g. Polymeric Systems, Inc.
 - h. Schnee-Morehead, Inc., an ITW company.
 - i. Sika Corporation.
- H. Back Bedding Mastic Glazing Tapes: Preformed, butyl based, 100 percent solids elastomeric tape; non-staining and non-migrating in contact with nonporous surfaces; with or without spacer rod recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C1281 and AAMA 800 for products indicated below:
 - 1. AAMA 804.3 tape, where indicated.
 - 2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
 - 3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- I. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
 - 1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
 - 2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.
- J. Miscellaneous Glazing Accessories: Provide products of material, size, and shape complying with referenced glazing standard, with requirements of manufacturers of glass and other glazing materials for application indicated, and with proven record of compatibility with surfaces contacted in installation.
 - 1. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
 - 2. Setting Blocks: Silicone, minimum 4 inches long and wide enough to fully support all lites of glazing unit.
 - 3. Spacers: Silicone blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
 - 4. Edge Blocks: Silicone material of hardness needed to limit glass lateral movement (side walking).
 - 5. 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.
 - 6. Perimeter Insulation for Fire Resistant Glazing: Product approved by testing agency listed and labeled fire resistant glazing product with which it is used for application and fire protection rating indicated.

2.7 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product

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- 1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
 - a. Temperature Change: 120 degrees F (67 degrees C), ambient; 180 degrees F (100 degrees C), material surfaces.
- 2. Edge and Surface Conditions: Comply with the recommendations of AAMA Structural Properties of Glass for clean cut edges, except comply with manufacturer's recommendations.
- 3. Exposed Glass Edges and Surface Condition: Finish edges flat with an arrissed edge profile (small bevel of uniform width not exceeding 1.5 mm at an angle of approximately 45 degrees to the surface of the glass) with polished (surface is reflective in appearance similar to the major surface of the glass) surface.
- B. Cutting: Wheel cut or sawed edges and seamed at manufacturer's option. For site cut glass, provide glass 2 inches (50.8 mm) larger than required in both dimensions to facilitate cutting of clean cut edges without the necessity of seaming or nipping. Do not cut, seam, nip or abrade heat treated glass.
- C. Butt Glazing: Clean cut or flat grind vertical edges of butt glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.
 - 1. Edges: Grind smooth and polish exposed glass edges and corners.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
 - 1. Manufacturing and installation tolerances, including size, squareness, and offsets at corners.
 - 2. Presence and functioning of weep systems.
 - 3. Minimum required face and edge clearances.
 - 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation after correcting unsatisfactory conditions.

3.2 PREPARATION

- A. Clean glazing channels and framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
 - 1. Comply with manufacturer instructions for wiping of surfaces immediately before application of primers.
 - 2. Wipe metal surfaces with IPA (isopropyl alcohol) unless otherwise required by compatibility and adhesion testing results.
- B. Inspect each piece of glass immediately before installation. Do not install pieces improperly sized or with damaged edges, scratches, abrasion, or evidence damage. Remove labels from glass immediately after installation.
- C. Examine glazing units to locate exterior and interior surfaces. Label or mark units so exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.
- D. Seal vent (breather or capillary) tubes in insulating glass units in accordance with insulating glass manufacturer written recommendations.
- E. Glass Film Preparation:
 - 1. Remove particulate matter on the glass surface using a scraping blade.
 - 2. Place an absorbent towel on window sill or sash to absorb moisture generated by the film application.

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3.3 GLAZING

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that, when installed, could weaken glass, impair performance, or impair appearance.
- C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- F. Provide spacers for glass lites where length plus width is larger than 50 inches (1270 mm).
 - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
 - 2. Provide 1/8 inch (3 mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- I. Set glass lites with proper orientation so that coatings face exterior or interior as specified.
- J. Where wedge shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
 - 1. Square cut wedge shaped gaskets at corners and install gaskets as recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.
- K. Tape Glazing: Position tapes on fixed stops so that, when compressed by glass, the exposed edges are flush with or protrude slightly above sightline of stops.
 - 1. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make tapes fit opening.
 - 2. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by applying tapes to jambs, then to heads and sills.
 - 3. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
 - 4. Do not remove release paper from tape until right before each glazing unit is installed.
 - 5. Apply heel bead of elastomeric sealant.
 - 6. Center glass lites in openings on setting blocks, and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
 - 7. Apply cap bead of elastomeric sealant over exposed edge of tape.

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- L. Gasket Glazing (Dry): Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
 - 1. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
 - 2. Installation with Drive in Wedge Gaskets: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
 - 3. Installation with Pressure Glazing Stops: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
 - 4. Install gaskets to protrude past face of glazing stops.
- M. Sealant Glazing (Wet): Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
 - 1. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
 - 2. Tool exposed surfaces of sealants to provide a substantial wash away from glass.
- N. Erection Tolerances:
 - 1. Maximum Deviation from Vertical: 1/8 inch in any story and 1/4 inch in any 45 foot run.
 - 2. Maximum Deviation from Horizontal: 1/8 inch in any 30 foot run.
 - 3. Maximum Deviation from True Alignment: 1/32 inch for any two (2) abutting units. Allow no edge projections.
 - 4. Maximum Joint Gap: 1/32 inch.

3.4 CLEANING AND PROTECTION

- A. Immediately after installation remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.
 - 1. If contaminating substances come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.
- C. Remove and replace glass that is damaged during construction period.
- D. Wash glass on both exposed surfaces not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

PART 4 SCHEDULE

4.1 GLAZING SCHEDULE

- A. Film Overlay (F):
 - 1. F1: Privacy Film Overlay: Matte privacy film.
 - a. Basis of Design: LLumar Decorative Frost Film Acid Etch manufactured by Eastman, a subsidiary of CPFilms, Inc.

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- B. Float Glass (GG):
 - 1. GG1: Float Glass: 1/4 inch (6 mm) clear float glass.
- C. Laminated Safety Glazing (GL):
 - 1. GL1: 1/4 inch (6 mm) laminated safety glass comprised of two (2) 1/8" (3 mm) glazing quality clear float glass lites, laminated to each side of a clear 0.03 inch polyvinyl butyral (PVB) interlayer.

END OF SECTION 08 80 00

SECTION 09 05 00 - COMMON WORK RESULTS FOR FINISHES

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. Substrate testing.
 - 2. Waterproof membranes.
- B. Related Sections:
 - 1. Section 03 30 00 Cast-In-Place Concrete: Concrete design, underslab vapor barrier and finished concrete surface required to accept flooring adhesive and finish flooring system.
 - 2. Section 03 54 00 Cast Underlayment: Leveling of existing concrete slabs.
 - 3. Section 05 75 00 Decorative Formed Metal: Extruded metal transitions and trim.
 - 4. Section 09 05 61 Common Work Results for Flooring Preparation.
 - 5. Section 09 65 00 Resilient Flooring.
 - 6. Section 09 65 13 Resilient Base and Accessories.

1.3 **REFERENCE STANDARDS**

- A. ANSI A137.1 American National Standard Specifications for Ceramic Tile; 2022.
- B. ASTM C1028 Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method; 2007 - Not Active.
- C. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials; 2023d.
- D. ASTM E329 Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2023.
- E. ASTM E699 Standard Specification for Agencies Involved in Testing, Quality Assurance, and Evaluating of Manufactured Building Components; 2016.
- F. ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2022.
- G. ASTM F1482 Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring; 2021.
- H. ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2023.
- I. ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.
- J. ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories; 2017.
- K. Texas Accessibility Standards (TAS) 2012 Texas Accessibility Standards (TAS); 2012.

1.4 **DEFINITIONS**

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Adhesives.
 - 2. Leadership in Energy and Environmental Design (LEED).
 - 3. Volitile Organic Compound (VOC)

1.5 SUBMITTALS

A. Product Data:

- 1. Submit manufacturer's printed descriptions of materials, components and systems; performance criteria; use limitations; preparation instructions and recommendations; storage and handling requirements and recommendations; and installation methods.
- B. Certificates:
 - 1. Submit with manufacturer's signature certifying that each product and/or system meets the requirements of the performance characteristics, physical criteria, and applicable standards specified.
 - a. Provide Master Grade Certificate as specified in ANSI A137.1.
- C. Test and Evaluation Reports:
 - 1. Submit certified test results by a recognized testing laboratory in accordance with specified test methods for each product and/or system indicating physical, chemical and performance characteristics.
- D. Samples:
 - 1. Submit samples showing full range of color and texture variations expected.
 - 2. Full size units of each type and composition of tile and for each color and finish required.
 - 3. Assembled samples mounted on a rigid panel, with grouted joints, for each type and composition of tile and for each color and finish required; minimum 12 inches (300 mm) square, but not fewer than four tiles. Use grout of type and in color or colors approved for completed Work.
 - 4. Waterproof membrane in 6 inch by 6 inch (150 mm by 150 mm) sample.
 - 5. Thresholds in 6 inch (150 mm) lengths.
- E. Closeout Submittals:
 - 1. Operation and Maintenance Data: Including, but not limited to, methods for maintaining installed products and precautions against cleaning materials with methods detrimental to finishes and performance.
 - 2. Executed Warranty Documentation: Manufacturers' material warranties and installers workmanship warranty.
 - 3. Record Documents: Drawings, Specifications, Product Data.

1.6 PERFORMANCE REQUIREMENTS

- A. Refer to the following for specific sub-flooring and finish flooring requirements:
 - 1. Section 03 30 00 Cast-In-Place Concrete.
 - 2. Section 03 54 00 Cast Underlayment.
 - 3. Section 09 65 00 Resilient Flooring.
- B. Static Coefficient of Friction (SCOF): For tile installed on walkway surfaces which are not anticipated to be wet, provide products with values determined by testing identical products per ASTM C1028:
 - 1. Level Surfaces: Minimum 0.6.
 - 2. Ramp Surfaces: Minimum 0.8.
- C. Dynamic Coefficient of Friction (DCOF): Per ANSI A137.1 Section 9.6 DCOF AcuTest:
 1. Wet Level Surfaces: Minimum 0.42 unless noted otherwise.

1.7 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Surface Burning Characteristics: ASTM E84; identify products with appropriate markings of applicable testing agency.
 - a. Flame Spread Index: 25 or less.
 - b. Smoke Developed Index: 450 or less.

- Accessibility Requirements: Comply with applicable requirements.
 a. Texas Accessibility Standards (TAS).
- B. Qualifications:
 - 1. Installer / Applicator: Perform installation with skilled, experienced and trained workmen supervised by trained personnel who shall have a minimum three (3) years successful experience in installations of similar size and scope.
 - 2. Testing Agency: An independent testing agency with the experience and capability to conduct the testing indicated, meeting requirements of ISO/IEC 17025 or ASTM E329 and ASTM E699.
- C. Source Limitations:
 - 1. Obtain spray-applied adhesive through one source from a single manufacturer.
 - 2. Obtain tile of same type and color or finish from one source or producer. Obtain tile from same production run and of consistent quality in appearance and physical properties for each contiguous area.
 - 3. Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.
 - a. Obtain each of the following products specified in this Section through one source from a single manufacturer for each product:
 - 1) Waterproofing.
 - 2) Joint sealants.
 - 3) Cementitious backer units.
 - 4) Metal edge strips.
- D. Sustainability Standards and Certifications:
 - 1. Adhesive and Sealant VOC Limits: According to South Coast Air Quality Management District Rule 1168 and GS-36 for aerosols.
 - 2. VOC Limits: As tested using U.S. EPA Reference Test Method 24 and as defined by
 - a. South Coast Air Quality Management District Rules: In areas where exposure to freeze/thaw conditions and direct exposure to moisture will not occur.
 - 1) SCAQMD Rule 1168, Adhesive and Sealant Applications
 - b. California Air Resources Board: For areas where freeze/thaw conditions do exist or direct exposure to moisture can occur.
 - 1) CARB for containers 16 oz. or less.
- E. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build mockup of each type of floor tile installation.
 - 2. Build mockup of each type of wall tile installation.
 - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Delivery, Storage and Handling per manufacturer's recommendations, Section 01 60 00 Product Requirements, and as follows:
 - 1. Delivery and Acceptance Requirements
 - a. Deliver materials to Project site in an undamaged condition, in original, unopened and undamaged packages or containers bearing manufacturer's intact label, names, brand names, types and thicknesses of contents, and proper handling, storing, unpacking, protecting, and installation instructions, as warranted.
 - 1) Comply with requirements in ANSI A137.1 for labeling tile packages.
 - b. Inspect shipped materials on delivery to ensure compliance with requirements of Contract Documents and to ensure that products are undamaged and properly protected. Reject damaged goods and accept properly ordered, protected and

undamaged goods.

- 2. Storage and Handling Requirements
 - a. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided. Store liquid materials in unopened containers and protected from freezing.
 - b. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.
 - c. Store adhesive materials in a dry, temperature-controlled interior area at 65-80 deg F (18-27 deg C). Protect materials from damage from improper handling, exposure to temperature extremes, and the action of other trades.
- 3. Packaging Waste Management
 - a. Request in writing that manufacturers, fabricators, suppliers and shippers provide least amount of packaging that adequately and properly protects, supports and contains the items shipped, and is reusable, returnable or recyclable.

1.9 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.
- B. Contractor is required to achieve the specified concrete moisture content prior to installation of all flooring materials or use a flooring manufacture approved moisture barrier prior to installation of all flooring products.
- C. Maintain temperatures at 50 degrees F or more in tiled areas during installation and for 7 days after completion, unless higher temperatures are required by referenced installation standard or manufacturer's instructions.

1.10 EXTRA STOCK

A. Refer to related sections for extra stock requirements.

1.11 PRE-INSTALLATION CONFERENCE

A. Refer to Section 01 31 00 - Project Management and Coordination.

1.12 WARRANTY

A. Refer to related sections for specific product warranty requirements.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 FIELD CONDITIONS

- A. Conditions and Measurements: Visit jobsite to verify installation conditions and floor measurements.
- B. Ambient Conditions per manufacturer's written recommendations, and as follows:
 - 1. New concrete slabs shall be flat, clean and dry meeting all moisture tests passing manufacturer's written requirements.
 - 2. Environmental Limitations: Maintain temperature and relative humidity per manufacturer's recommendations.
 - a. Maintain space, substrate temperatures, and RH for time prior to, during and after installation as recommended.
 - 3. Acclimate floor finish materials into spaces they will be installed a minimum 48 hours in advance of installation.

a. Do not install until all floor finish materials are same temperature as space where they are to be installed.

3.2 EXAMINATION - GENERAL

- A. Contractor shall examine preparatory work by others, with Installer/Applicator present, for compliance with requirements affecting Work performance.
 - 1. Contractor shall notify Architect of any issues which would affect installation of finish. Absence of such notification shall constitute acceptance of responsibility by Contractor.
- B. Verify that field measurements, surfaces, substrates, structural support, tolerances, levelness, plumbness, temperature, humidity, moisture content level, cleanliness, and other conditions are as required by the manufacturer, and ready to receive Work.

3.3 EXAMINATION - FLOORING

- A. Verify that concrete floors to receive resilient flooring meet ASTM F710 requirements and are flat as recommended by floor finish manufacturer.
- B. Verify that wood and panel type underlayment substrates to receive resilient flooring meet ASTM F1482 requirements and are flat as recommended by floor finish manufacturer.
- C. Test substrates as required by manufacturer to verify proper conditions.
 - 1. Portland-Cement Concrete:
 - a. Perform moisture testing to verify that concrete substrate is sound and dry. Both of the following tests are required:
 - Perform relative humidity (RH) test using in situ probes per ASTM F2170. Proceed with installation only after each substrate measures a maximum 75 percent RH.
 - Perform anhydrous calcium chloride testing per ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 7 lbs of water/1000 sf (3.18 kg of water/92.9m2) in 24 hours.
 - b. Perform alkalinity testing to verify pH level is 11 or below per ASTM F710.
 - c. Perform bond testing per ASTM F710 to determine compatibility of adhesive to concrete substrate.
 - 2. Wood Underlayment: Shall be dry, clean, structurally sound, well nailed and/or glued, free of voids and with joints that do not exceed 1/16 inch (1.6mm) per floor finish manufacturer's installation instructions.
 - 3. Proceed with installation only after unsatisfactory conditions have been corrected.
 - a. Commencement of work related to this Section will constitute acceptance of conditions.

3.4 INSTALLATION - GENERAL

- A. Lay out tilng so that no tile is cut to less than 1/2 of its full size in either direction.
- B. Slope tile within 3 foot diameter of a floor drain, unless otherwise noted.
- C. Form internal angles square.

3.5 INSTALLATION - STONE SHRESHOLDS

A. Set marble thresholds in accordance with TCA TR611 and manufacturer's instructions.

3.6 FIELD QUALITY CONTROL

- A. Site Tests and Inspections:
 - 1. Inspect floor finish system installation for non-conforming Work including, but not limited to, the following:
 - a. Lack of adequate adhesion.
 - b. Adhesive overspray.
 - 1) Clean off water-based adhesive overspray with a damp cloth.

- c. Improper substrate preparation as indicated by:
 - 1) Air blisters.
 - 2) Buckling.
 - 3) Cracks.

3.7 CLEANING

A. Clean finishes as required and in accordance with manufacturer's recommendations.

3.8 CLOSEOUT ACTIVITIES

A. Refer to Section 01 77 00 - Closeout Procedures.

END OF SECTION 09 05 00

SECTION 09 05 61 - COMMON WORK RESULTS FOR FLOORING PREPARATION

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. This section applies to floors identified in Contract Documents that are receiving the following types of floor coverings:
 - a. Resilient tile and sheet.
 - 2. Preparation of new and existing concrete floor slabs for installation of floor coverings.
 - 3. Testing of concrete floor slabs for moisture and alkalinity (pH).
 - 4. Remediation of concrete floor slabs due to unsatisfactory moisture or alkalinity (pH) conditions.
 - a. Contractor shall perform all specified remediation of concrete floor slabs. If such remediation is indicated by testing agency's report and is due to a condition not under Contractor's control or could not have been predicted by examination prior to entering into the contract, a contract modification will be issued.
- B. Related Sections:
 - 1. Section 01 40 00 Quality Requirements: Additional requirements relating to testing agencies and testing.
 - 2. Section 01 74 19 Construction Waste Management and Disposal: Handling of existing floor coverings removed.
 - 3. Section 02 41 00 Demolition: Removal of existing flooring.
 - 4. Section 03 54 00 Cast Underlayment: Self-leveling underlayment applied as remediation treatment.
 - 5. Section 09 65 00 Resilient Flooring.

1.3 **REFERENCE STANDARDS**

- A. ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2023.
- B. ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.

1.4 **DEFINITIONS**

- A. Refer to Section 01 42 16 Definitions for the following terms:
 - 1. Adhesives.
 - 2. Leadership in Energy and Environmental Design (LEED).
 - 3. Volitile Organic Compound (VOC).

1.5 ADMINISTRATIVE REQUIREMENTS

A. Coordinate scheduling of cleaning and testing, so that preliminary cleaning has been completed for at least 24 hours prior to testing.

1.6 SUBMITTALS

- A. 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.
- B. 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. Product data for recommended remedial coating.
- 7. Include certification of accuracy by authorized official of testing agency.
- 8. Submit report directly to Owner.
- 9. Submit report to Architect.
- 10. Submit report not more than two business days after conclusion of testing.
- C. Adhesive Bond and Compatibility Test Report.
- D. Floor Moisture Testing Technician Certificate: International Concrete Repair Institute (ICRI) Concrete Slab Moisture Testing Technician- Grade I certificate.

1.7 PERFORMANCE REQUIREMENTS

- A. Refer to the following for specific sub-flooring and finish flooring requirements:
 - 1. Section 03 54 00 Cast Underlayment.
 - 2. Section 06 10 00 Rough Carpentry: Sub-flooring.

1.8 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 Contractor's 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.
 - 2. Acceptable Testing Agencies:
 - a. Independent Floor Testing & Inspection, Inc. (IFTI): www.ifti.com/#sle.
 - b. Other testing agency approved by Owner.
 - c. Substitutions: Not permitted.
- 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 Owner when specified ambient conditions have been achieved and when testing will start.
 - 6. Notify Architect when specified ambient conditions have been achieved and when testing will start.
- E. Floor Moisture Testing Technician Qualifications: International Concrete Repair Institute (ICRI) Concrete Slab Moisture Testing Technician Certification- Grade I.
- F. 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.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, handle, and protect products in accordance with manufacturer's instructions and recommendations.

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- B. Deliver materials in manufacturer's packaging; include installation instructions.
- C. Keep materials from freezing.

1.10 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 (18 degrees C) or more than 85 degrees F (30 degrees C).
- 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.

1.11 WARRANTY

- A. Provide Flooring Adhesive Manufacturer's:
 - 1. Material and Workmanship Warranty:
 - a. Aerosol (22oz, 18oz) Flooring Adhesive shall be free from defects in material and workmanship for a period of two (2) years from date of manufacture when handled, stored and transported per adhesive manufacturer's requirements.
 - b. Aerosol (28 lb. cylinders) Flooring Adhesive shall be free from defects in material and workmanship for a period of twelve (12) months from date of manufacture when handled, stored and transported per adhesive manufacturer's requirements.
 - 2. Delamination Warranty that there shall be no delamination failure:
 - a. Due to adhesive failure for a period of five (5) years from date of installation when applied to adhere approved flooring materials per Adhesive manufacturer's requirements.
 - b. As long as moisture vapor emissions do not exceed 85 percent RH when tested in accordance with ASTM F2170.
 - c. For moisture in concrete slab conditions up to 7 lb per 1,000 sf per 24 hours when tested with a prepackaged calcium chloride crystal kit performed in accordance with ASTM F1869.
 - d. For concrete slab conditions up to a pH of 11 when tested in accordance with ASTM F710 .

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
- B. Substitutions: Refer to Section 01 25 13 Product Substitution Procedures.
 - 1. Manufacturers and fabricators not listed must have a minimum of 5 years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered. Submit as a substitution

2.2 MATERIALS

- A. Patching Compund: Refer to Section 03 54 00 Cast Underlayment
- 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. Spray-Applied Adhesive:
 - 1. Water-based pressure-sensitive aerosol adhesive, VOC- Free, non-flammable, and non-HAP, emitting no dangerous fumes or odors.
 - 2. Manufacturers:
 - a. Spray-Lock by Interlock Industries, Inc., (706) 517-8989.
 - 3. Basis of Design Product(s):

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- a. Spray-Lock[™] 6500 for adhering vinyl backed carpet tile, and luxury vinyl tiles (LVT) or planks.
- b. Spray-Lock™ 9500 for adhering vinyl composition tile (VCT).
- c. Spray-Lock™ 3500 for adhering resilient sheet vinyl flooring; and formulated for use in Medical / Health Care applications.

PART 3 EXECUTION

3.1 REMOVAL OF EXISTING FLOOR COVERINGS

A. Refer to Section 02 41 00 - Demolition.

3.2 CONCRETE SLAB PREPARATION

- A. Follow recommendations of testing agency.
- B. Perform following operations in the order indicated:
 - 1. Existing concrete slabs (on-grade and elevated) with existing floor coverings:
 - a. Visual observation of existing floor covering, for adhesion, water damage, alkaline deposits, and other defects.
 - b. Removal of existing floor covering in accordance with Section 02 41 00 Demolition.
 - 2. Existing concrete slabs with coatings or penetrating sealers/hardeners/dustproofers:
 - a. Do not attempt to remove coating or penetrating material.
 - b. Do not abrade surface.
 - 3. Preliminary cleaning.
 - 4. Moisture vapor emission tests; 3 tests in the first 1000 square feet (100 square meters) and one test in each additional 1000 square feet (100 square meters), unless otherwise indicated or required by flooring manufacturer.
 - 5. Internal relative humidity tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
 - 6. Alkalinity (pH) tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
 - 7. Specified remediation, if required.
 - 8. Patching, smoothing, and leveling, as required.
 - 9. Other preparation specified.
 - 10. Adhesive bond and compatibility test.
 - 11. Protection.
- C. 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 or remedial sheet membrane 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.

3.3 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.

3.4 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 (1.4 kg per 93 square meters) per 24 hours.
- F. Report: Report the information required by the test method.

3.5 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.

3.6 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.
 - 1. Use a wide range alkalinity (pH) test paper, its associated chart, and distilled or deionized water.
 - 2. Place several drops of water on a clean surface of concrete, forming a puddle approximately 1 inch (25 mm) 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.
 - 3. Use of a digital pH meter with probe is acceptable; follow meter manufacturer's instructions.
- C. 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.

3.7 PREPARATION

- A. Refer to individual floor covering section(s) for additional requirements.
- B. Comply with recommendations of testing agency.
- C. Comply with requirements and recommendations of floor covering manufacturer.

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- D. Fill and smooth surface cracks, grooves, depressions, control joints and other non-moving joints, and other irregularities with patching compound.
- E. Do not fill expansion joints, isolation joints, or other moving joints.

3.8 ADHESIVE BOND AND COMPATIBILITY TESTING

A. Comply with requirements and recommendations of floor covering manufacturer.

3.9 APPLICATION OF REMEDIAL FLOOR COATING

A. Comply with requirements and recommendations of coating manufacturer.

3.10 INSTALLATION OF REMEDIAL FLOOR SHEET MEMBRANE

A. Install in accordance with sheet membrane manufacturer's instructions.

3.11 APPLICATION OF SPRAY-APPLIED ADHESIVE

- A. Installation per each floor finish assembly product manufacturer's written instructions, and as follows:
 - 1. Spray-Applied Adhesive Method:
 - a. Do not place finish-flooring product until adhesive applied to substrate is ready to receive it per adhesive manufacturer's instructions.
 - b. Mark floor equivalent to manufacturer's recommended area for size of container used. Apply no more or less adhesive than what manufacturer recommends.
 - c. Outline perimeter of the room with a 4-5 inch (100-125 mm) wide band of adhesive. Apply the adhesive from 8-12 inches (200-300 mm) above the substrate.
 - d. Lay flooring finish material, adjust and reset until layout placement is certain.
 - e. Following installation of finish flooring (typically within an hour after installing) roll entire floor area with a 75 to 100 lb (34 to 45 kg) roller to ensure proper bonding with instant shear strength.
 - 2. Close space to traffic for 2 hours before beginning installation, however, flooring is immediately available after rolling for all range of use.

3.12 PROTECTION

A. Cover prepared floors with building paper or other durable covering.

END OF SECTION 09 05 61

SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

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. Gypsum board.
 - 2. Partition framing systems.
 - 3. Exterior gypsum board for ceilings and soffits.
 - 4. Tile backing panels.
 - 5. Ceiling suspension systems.
 - 6. Accessories necessary for a complete installation.
- B. Related Sections:
 - 1. Section 01 61 16 Volatile Organic Compound (VOC) Content Restrictions.
 - 2. Section 05 75 00 Decorative Formed Metal: Decorative metal reveals and trim.
 - 3. Section 06 10 00 Rough Carpentry: Building blocking.
 - 4. Section 07 92 00 Joint Sealants: Acoustical joint sealant.

1.3 **REFERENCE STANDARDS**

- A. ANSI A108.11 American National Standard Specifications for Interior Installation of Cementitious Backer Units; 2023.
- B. ANSI A118.9 American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 2023.
- C. ASTM A641/A641M Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire; 2019.
- D. ASTM A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.
- E. ASTM B221 Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.
- F. ASTM B221M Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.
- G. ASTM C475/C475M Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2017.
- H. ASTM C645 Standard Specification for Nonstructural Steel Framing Members; 2018.
- I. ASTM C754 Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2020.
- J. ASTM C840 Standard Specification for Application and Finishing of Gypsum Board; 2020.
- K. ASTM C954 Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2022.
- L. ASTM C1002 Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2022.
- M. ASTM C1047 Standard Specification for Accessories For Gypsum Wallboard and Gypsum Veneer Base; 2019.

- N. ASTM C1178/C1178M Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel; 2018.
- O. ASTM C1288 Standard Specification for Discrete Non-Asbestos Fiber-Cement Interior Substrate Sheets; 2017.
- P. ASTM C1325 Standard Specification for Fiber-Mat Reinforced Cementitious Backer Units; 2022.
- Q. ASTM C1396/C1396M Standard Specification for Gypsum Board; 2017.
- R. ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2021.
- S. ASTM D3274 Standard Test Method for Evaluating Degree of Surface Disfigurement of Paint Films by Fungal or Algal Growth, or Soil and Dirt Accumulation; 2009 Edition, March 1, 2009
- T. ASTM E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.
- U. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials; 2022.
- V. ASTM E413 Classification for Rating Sound Insulation; 2022.
- W. ASTM E488/E488M Standard Test Methods for Strength of Anchors in Concrete Elements; 2022.
- X. ASTM E1190 2021 Edition, November 15, 2021 Standard Test Methods for Strength of Power-Actuated Fasteners Installed in Structural Members; 2021 Edition, November 15, 2021.
- Y. ASTM F1267 Standard Specification for Metal, Expanded, Steel; 2018 (Reapproved 2023).

1.4 PERFORMANCE REQUIREMENTS

- A. Performance Requirements: Comply with manufacturer's load tables and the following design pressures and deflections:
 - 1. Stairs, Elevator Hoistways, and Vertical Shafts: 1/120 at 10 psf.
 - 2. Ground Floor Lobbies: 1/120 at 15 psf.
 - 3. Partitions Receiving Stone Cladding, Lath and Plaster, or Plaster Veneer: 1/360 at 15 psf.
 - 4. Partitions Receiving Monitors, Televisions, Heavy Audio/Visual Equipment: 1/360 at 15 psf.
 - 5. Typical Partitions: 1/240 at 5 psf.
 - 6. Other Partitions: 1/240 at 5 psf.
 - a. Maximum Deflection:
 - 1) L/240 at 5 lbf per sq. ft.
 - 2) L/120 at 5 lbf per sq. ft.
 - 3) L/120 at 7.5 lbf per sq. ft.
 - 4) L/120 at 10 lbf per sq. ft.
- B. 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.
- C. STC Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.

1.5 SUBMITTALS

A. Product Data: Submit For each type of drywall including calculations for loadings and stresses of exterior walls and specially fabricated framing based on manufacturer's load tables.

- B. Shop Drawings: Indicate locations, fabrication, and installation of control and expansion joints including plans, elevations, sections, details of components, and attachments to other units of work.
- C. Samples:
 - 1. Trim Accessories: Full size Sample in 12 inch (300 mm) long length for each trim accessory indicated.
 - 2. Textured Finishes: 12 inch by 12 inch (300 mm by 300 mm) for each textured finish indicated and on same backing indicated for work.
- D. Calculations: Submit calculations verifying steel partition stud minimum base metal thickness and depth compliance with Code and ASTM C645 for height, load, and deflection.
- E. Evaluation Reports: ICC-ES reports for dimpled steel studs and runners and firestop tracks.

1.6 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Comply with applicable requirements of building code for interior finishes.
- B. Single Source Responsibility:
 - 1. Framing Members: Obtain steel framing members from single manufacturer.
 - 2. Panel Products: Obtain each type of gypsum board and other panel products from single manufacturer.
 - 3. Finishing Materials: To the extent possible, obtain finishing materials from same manufacturer supplying gypsum board products. When not possible, obtain materials from manufacturer acceptable to gypsum board manufacturer.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.8 **PROJECT CONDITIONS**

- A. Environmental Limitations: Comply with ASTM C840 for gypsum board manufacturer's written instructions, whichever are more stringent.
 - 1. Do not install paper faced gypsum panels until installation areas are enclosed and conditioned.
- B. Room Temperatures: Maintain minimum 40 degrees F (4 degrees C). For adhesive attachment and finishing of gypsum board, maintain minimum 50 degrees F (10 degrees C) for 48 hours before application and continuously after until dry. Do not exceed 95 degrees F (35 degrees C) when using temporary heat sources.
- C. Ventilation: Ventilate building spaces as required to dry joint treatment materials. Avoid drafts during hot, dry weather to prevent finishing materials from drying too rapidly.
- D. 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 MANUFACTURERS

A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.

- 1. Steel Studs and Tracks:
 - a. CEMCO: www.cemcosteel.com.
 - b. ClarkDietrich: www.clarkdietrich.com.
 - c. Custom Stud, Inc.: www.customsteelcraft.com.
 - d. MBA Building Supplies: www.mbastuds.com.
 - e. MRI Steel Framing, LLC: www.mristeelframing.com.
 - f. Phillips Manufacturing Co.: www.phillipsmfg.com.
 - g. Steel Network, Inc. (The): www.steelnetwork.com.
 - h. Telling Industries: www.tellingindustries.com.
- 2. Ceiling Suspension System:
 - a. Armstrong World Industries, Inc.: www.armstrongceilings.com.
 - b. Rockfon: www.rockfon.com.
 - c. USG Corporation: www.usg.com.
- 3. Gypsum Board:
 - a. Certainteed Corporation: www.certainteed.com.
 - b. Georgia Pacific: www.gp.com.
 - c. National Gypsum Company: www.nationalgypsum.com.
 - d. USG Corporation: www.usg.com.
- 4. Tile Backer Board:
 - a. USG Corporation: www.usg.com.
- 5. Cementitious Board:
 - a. Custom Building Products: www.custombuildingproducts.com.
 - b. National Gypsum Company: www.nationalgypsum.com.
 - c. USG Corporation: www.usg.com.
- 6. Trim:
 - a. Fry Reglet Corporation: www.fryreglet.com.
 - b. Gordon, Inc.: www.gordon-inc.com.
 - c. Pittcon Industries: www.pittconindustries.com.
 - d. Schluter Systems: www.schluter.com.
 - e. Waterguard USA: www.waterguard-usa.com.
- 7. Extruded Partition Closure:
 - a. Gordon, Inc.: www.gordon-inc.com.
- 8. Security Mesh:
 - a. ClarkDietrich: www.clarkdietrich.com.
- B. Substitutions: Refer to Section 01 25 13 Product Substitution Procedures.
 - 1. Manufacturers and fabricators not listed must have a minimum of 5 years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered. Submit as a substitution.

2.2 MATERIALS

- A. Framing Members: ASTM C754 for component sizes and conditions under specified maximum deflection and lateral loading conditions indicated.
 - 1. Steel Sheet Components: Comply with ASTM C645 requirements for metal.
 - 2. Protective Coating:
 - a. Standard: ASTM A653/A653M, G40, hot dip galvanized.
 - b. Enhanced: ASTM A653/A653M, G60, hot dip galvanized.
- B. Steel Framing Components: ASTM C754 for conditions indicated; hot dip galvanize complying with ASTM A653/A653M Z180.
 - 1. Steel Studs and Runners: ASTM C645, 0.0179 inch (0.45 mm) minimum base metal thickness; depth indicated on Drawings.

- 2. Dimpled Steel Studs and Runners: ASTM C645, equivalent to minimum base metal thickness indicated on Drawings for depth indicated on Drawings.
- 3. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated. Minimum Base Metal Thickness: 0.0179 inch (0.45 mm).
- 4. Cold-Rolled Channel Bridging: 0.0538 inch (1.37 mm) bare steel thickness, with minimum 1/2 inch (12.7 mm) wide flanges; depth indicated on Drawings.
- 5. Clip Angle: Not less than 1-1/2 inches by 1-1/2 inches (38.1 mm by 38.1 mm), 0.068 inch (1.73 mm) thick, galvanized steel.
- 6. Hat Shaped, Rigid Furring Channels: ASTM C645; 0.0179 inch (0.45 mm) minimum base metal thickness; depth indicated on Drawings.
- 7. Resilient Furring Channels: 1/2 inch (12.7 mm) deep, steel sheet members designed to reduce sound transmission. Configuration: Asymmetrical or hat shaped.
- 8. Cold Rolled Furring Channels 0.0538 inch (1.37 mm) bare steel thickness, with minimum 1/2 inch (12.7 mm) wide flanges.
 - a. Depth: As indicated on Drawings.
 - b. Furring Brackets: Adjustable, corrugated edge type of steel sheet with minimum bare steel thickness of 0.0312 inch (0.79 mm).
 - c. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.0625 inch (1.59 mm) diameter wire, or double strand of 0.0475 inch (1.21 mm) diameter wire.
- 9. Z-Shaped Furring Channels: With slotted or non-slotted web, face flange of 1-1/4 inches (31.8 mm), wall attachment flange of 7/8 inch (22.2 mm), minimum bare metal thickness of 0.0179 inch (0.45 mm), and depth required to fit insulation thickness indicated.
- 10. Auxiliary Framing Materials: Fasteners of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- 11. Slip Type Head Joints: Where indicated, provide one of the following:
 - a. Single Long Leg Runner System: ASTM C645 top runner with 2 inch (50.8 mm) deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging, located within 12 inches (305 mm) of the top of studs to provide lateral bracing.
 - b. Double Runner System: ASTM C645 top runners, inside runner with 2 inch (50.8 mm) deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
 - c. Deflection Track: Steel sheet top runner 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. Provide one of the following:
 - 1) Dietrich Metal Framing; SLP-TRK Slotted Deflection Track.
 - 2) Steel Network Inc. (The); VertiClip SLD or VertiTrack VTD Series.
 - 3) Superior Metal Trim; Superior Flex Track System (SFT).
- 12. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the 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. Provide one of the following:
 - a. Fire Trak Corp.; Fire Trak attached to studs with Fire Trak Slip Clip.
 - b. Grace Construction Products; FlameSafe FlowTrak System.
 - c. Metal-Lite, Inc.; The System.
 - d. Steel Network Inc. (The); VertiClip SLD or VertiTrack VTD Series as applicable.
- C. Ceiling Suspension System:
 - 1. Basis of Design:
 - a. Drywall Grid Systems manufactured by Armstrong World Industries, Inc.
 - b. 640-C manufactured by Chicago Metallic Corporation.
 - c. Drywall Suspension System manufactured by USG Corporation.

- 2. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.0625 inch (1.59 mm) diameter wire, or double strand of 0.0475 inch (1.21 mm) diameter wire.
- 3. Hanger Attachments to Concrete:
 - a. Anchors: Post-installed, chemical anchor or post-installed, expansion anchor fabricated from corrosion resistant materials with holes or loops for attaching wire hangers and capable of sustaining, without failure, a load equal to 5 times that imposed by construction as determined by testing according to ASTM E488/E488M by an independent testing agency.
 - b. Powder Actuated Fasteners: Suitable for application indicated, fabricated from corrosion resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E1190 by an independent testing agency.
- 4. Wire Hangers: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.162 inch (4.12 mm) diameter.
- 5. Carrying Channels: Cold rolled, commercial steel sheet with base metal thickness of 0.0538 inch (1.37 mm) and minimum 1/2 inch (12.7 mm) wide flanges. Depth indicated on Drawings.
- 6. Furring Channels (Furring Members):
 - a. Cold Rolled Channels: 0.0538 inch (1.37 mm) bare steel thickness, with minimum 1/2 inch (12.7 mm) wide flanges, 3/4 inch (19.1 mm) deep.
 - b. Steel Studs: ASTM C645; minimum base metal thickness of 0.0312 inch (0.79 mm); Depth as indicated on Drawings.
 - c. Hat Shaped, Rigid Furring Channels: ASTM C645, 7/8 inch (22.2 mm) deep; Minimum base metal thickness of 0.0312 inch (0.79 mm).
- 7. Resilient Furring Channels: 1/2 inch (12.7 mm) deep members designed to reduce sound transmission.
- 8. Grid Suspension System for Ceilings: ASTM C645, direct hung system composed of main beams and cross furring members that interlock.
- D. Gypsum Board: ASTM C1396/C1396M, applicable to type of gypsum board indicated and whichever is more stringent.
 - 1. Wall Board:
 - a. Type: X.
 - b. Thickness: 5/8 inch (15.9 mm).
 - c. Long Edges: Tapered and featured (rounded or beveled) for pre-filling.
 - 2. Ceiling Board: Manufactured for sag resistance
 - a. Type: X typical, C at fire-resistance-rated ceiling assemblies.
 - b. Thickness: 1/2 inch (13 mm).
 - c. Long Edges: Tapered.
 - 3. Moisture and Mold Resistant Type: Type X with moisture and mold resistant core and surfaces.
 - a. Type: X.
 - b. Thickness: 5/8 inch (15.9 mm).
 - c. Long Edges: Tapered.
 - 4. Fire-Resistant Core, Foil-Backed: ASTM C1396/C1396M
 - a. Basis of Design: Gold Bond® Foil Back Gypsum Board manufactured by National Gypsum Company.
 - b. Thickness: 5/8 inch (15.9 mm).
 - c. Core: Type X.
 - d. Edges: Tapered.

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- E. Reinforced Gypsum Sheathing (Tile Backer Board): ASTM C1178/C1178M, standard edges. Cellulose fiber reinforced panels may be used in lieu of cementitious board.
 - 1. Core and Thickness: 5/8 inch (15.9 mm) to match conditions, Type X.
 - 2. Long Edge: Tapered.
 - 3. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.
- F. Cementitious Backer Units: ANSI A118.9 and ASTM C1288 or ASTM C1325.
 - 1. Thickness: 1/2 inch (12.7 mm) and 5/8 inch (15.9 mm) to match conditions.
 - 2. Long Edges: Standard.
 - 3. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.3 BEADS, JOINT ACCESSORIES, AND OTHER TRIM

- A. Exterior Trim: ASTM C1047, hot dip galvanized steel sheet, plastic, or rolled zinc.
 - 1. Shapes:
 - a. Cornerbead.
 - b. LC Bead: J shaped; exposed long flange receives joint compound.
 - c. Expansion (Control) Joint: One piece, rolled zinc with V shaped slot and removable strip covering slot opening.
- B. Interior Trim: ASTM C1047; galvanized or aluminum coated steel sheet, rolled zinc, plastic, or paper faced galvanized steel sheet.
 - 1. 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.
 - 2. Flush Transition Molding:
 - a. Description: Metal trim for transition between gypsum board and suspended ceilings.
 - b. Basis of Design:
 - 1) 7904 manufactured by Armstrong World Industries, Inc.
 - c. Exposed Flange Size: 15/16 inch (24 mm).
 - d. Protective Film: Provide.
 - e. Color: White.
- C. Expansion (Control) Joint.
 - 1. Manufacturers: Manufacturers listed whose products meet or exceed the specifications are approved for use on the Project. Other manufacturers must have a minimum of five (5) years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered.
 - a. Fry Reglet Corp.
 - b. Gordon, Inc.
 - c. Pittcon Industries.
- D. Decorative Metal Trims and Reveals: Refer to Section 05 75 00 Decorative Formed Metal.
- E. Continuous Corner Bead: Extruded Aluminum; continuous integral fin for surface contact with gypsum board; 7/8 inch (22 mm) wide, tapered to edge; punched with holes staggered to accept screw fastening. Prime with corrosion resistant primer.
 - 1. Manufacturer: Specifications are based on products of manufacturers named as the Basis of Design. Manufacturers listed whose products meet or exceed the specifications are approved for use on the Project. Other manufacturers must have a minimum of five (5) years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered.
 - a. Fry Reglet Corporation.

- b. Pittcon Industries.
- c. Schluter Systems.
- 2. Basis of Design Product: Pittcon Softforms SO-HSE-90
- F. Joint Treatment: ASTM C475/C475M.
 - 1. Joint Tape:
 - a. Exterior Gypsum Soffit Board: Paper.
 - b. Joint Compound for Exterior Applications, Glass Mat Gypsum Sheathing Board: Recommended by sheathing board manufacturer.
 - c. Joint Tape, Interior Gypsum Board: Paper.
 - 2. Joint Compound:
 - a. Gypsum Board: Pre-Filling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting type taping compound.
 - 1) 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.
 - 2) Fill Coat: For second coat, use setting type, sandable topping compound.
 - 3) Finish Coat: For third coat, use setting type, sandable topping compound.
 - 4) Skim Coat: For final coat of Level 5 finish, use setting type, sandable topping compound.
 - b. Cementitious Units: Recommended by backer unit manufacturer.
 - c. Tile Backing Panels: Recommended by backer unit manufacturer.
 - d. Water Resistant Gypsum Backing Board: Use setting type taping compound and setting-type, sandable topping compound.
 - e. Joint Compound, Glass Mat Sheathing Board: Recommended by sheathing board manufacturer.
- G. Partition Closure:
 - 1. Description: Extruded aluminum partition closures are pre-assembled and spring-loaded to provide a tight fit for vertical junctures of partitions and window assemblies.
 - 2. Basis of Design Product:
 - a. Mullion Mate High STC manufactured by Gordon, Inc.
 - 3. Material: 6063-T5 temper, tensile strength 31 KSI (ASTM B221/ASTM B221M).
 - 4. Sound Transmission: STC 50 minimum.
 - 5. Width: As required.
 - 6. Accessories:
 - a. Partition End Caps.
 - 7. Finish: Match adjacent storefront, window wall, or curtain wall system.
- H. Auxiliary Materials: Comply with referenced installation standards and manufacturer's written recommendations.
 - 1. Steel Drill Screws: ASTM C1002, use screws complying with ASTM C954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.
 - 2. Sound Attenuation Blankets: Refer to Section 09 81 00 Acoustic Insulation.
 - 3. Security Mesh:
 - a. Material: Type II, Class 2 Galvanized mesh complying with ASTM F1267.
 - b. Gauge: 16 ga.
 - c. Basis of Design Product: BM50 manufactured by ClarkDietrich.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates including welded hollow metal frames, cast in anchors, and structural framing, for compliance with requirements and other conditions affecting

performance. Proceed with installation 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. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.

3.3 INSTALLATION

- A. Installation Standard: ASTM C754, except comply with framing sizes and spacing indicated.
- B. Gypsum Board Assemblies: Comply with requirements in ASTM C840 applicable to framing installation.
- C. Suspension System: Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
 - 1. Suspend hangers from building structure:
 - a. Install hangers plumb and free from contact with insulation or objects within ceiling plenum that are not part of supporting structural or suspension system. Splay hangers where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - b. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
 - 1) Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.
 - c. Do not attach hangers to steel roof deck.
 - d. Do not attach hangers to permanent metal forms. Furnish cast in place hanger inserts that extend through forms.
 - e. Do not attach hangers to rolled in hanger tabs of composite steel floor deck.
 - f. Do not connect or suspend steel framing from ducts, pipes, or conduit.
 - 2. Fire Resistance Rated Assemblies: Wire tie furring channels to supports.
 - 3. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.
 - 4. Ceiling Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross furring members to each other and butt cut to fit into wall track.
- D. Framing Assembly: Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
 - 1. Install studs so flanges within framing system point in same direction. Space studs in single layer application as indicated on drawings.
 - 2. Install tracks (runners) 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 penetrating partitions above ceiling.
 - a. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - 1) Install two studs at each jamb, unless otherwise indicated.
 - 2) Install cripple studs at head adjacent to each jamb stud, with minimum 1/2 inch (12.7 mm) clearance from jamb stud to allow for installation of control joint in

finished assembly.

- 3) Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
- b. 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.
- 3. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.
- E. Sound Insulation: Install sound attenuation blankets before installing gypsum panels, unless blankets are readily installed after panels have been installed on one side.
- F. Gypsum Panels: Comply with ASTM C840. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
 - 1. 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.
 - 2. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.
 - 3. 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.
 - 4. Form control and expansion joints with space between edges of adjoining gypsum panels.
 - 5. Cover both faces of support framing with gypsum panels in concealed spaces, except in chases braced internally.
 - 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. (0.7 sq. m) in area.
 - b. Fit gypsum panels around ducts, pipes, and conduits.
 - c. 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 inch to 3/8 inch (6.4 mm to 9.5 mm) wide joints to install sealant.
 - 6. Isolate perimeter of gypsum board applied to non-load bearing partitions at structural abutments, except floors. Provide 1/4 inch to 1/2 inch (6.4 mm to 12.7 mm) 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.
 - 7. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- G. Gypsum Board: Install interior gypsum board where indicated on drawings.
 - 1. Single Layer Application:
 - a. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.
 - b. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated or required by fire resistance rated assembly, and minimize end joints. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - c. Fastening Methods: Apply gypsum panels to supports with steel drill screws.
 - 2. Multilayer Application:
 - a. 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.

- b. 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.
- c. Fastening Methods: Fasten base layers and face layers separately to supports with screws.
- H. Backing Panels:
 - 1. Cementitious Backer Units: ANSI A108.11; install where indicated with 1/4 inch (6.4 mm) gap where panels abut other construction or penetrations. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.
- I. Exterior Gypsum Board Soffits: Apply panels perpendicular to supports, with end joints staggered and located over supports.
 - 1. Install with 1/4 inch (6.4 mm) open space where panels abut other construction or structural penetrations.
 - 2. Fasten with corrosion-resistant screws.
- J. Trim Accessories: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Attach trim according to manufacturer's written instructions.
 - 1. Control Joints: Install control joints according to ASTM C840 (30 feet maximum), at each door and window jamb (unless noted otherwise), and in specific locations indicated on Drawings.
 - 2. Exterior Trim: Install in the following locations:
 - a. Cornerbead: Use at outside corners.
 - b. LC Bead: Use at exposed panel edges.
 - 3. Interior Trim: Install in the following locations:
 - a. Cornerbead: Use at outside corners, unless otherwise indicated.
 - b. Bullnose Bead: Use at outside corners.
 - c. LC Bead: Use at exposed panel edges.
 - d. L Bead: Use where indicated or necessary.
 - e. U Bead: Use at exposed panel edges.
- K. Gypsum Board Finishing: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
 - 1. Pre-fill open joints, rounded or beveled edges, and damaged surface areas.
 - 2. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
 - 3. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840:
 - a. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
 - b. Level 2: Panels that are substrate for tile.
 - c. Level 3: Where indicated on Drawings.
 - d. Level 4: For surfaces receiving flat paints.
 - e. Level 5: For surfaces receiving gloss or semi-gloss paint, subjected to severe lighting, or receiving wall covering.
 - 4. Glass Mat Faced Panels: Finish according to manufacturer's written instructions.
- L. Installation Tolerances:
 - 1. Suspension System: Install suspension systems that are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member that will receive finishes and

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transversely between parallel members that will receive finishes.

- 2. Installation Tolerances, Suspension System: Install suspension systems level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.
- M. Fire-Resistance-Rated and Smoke Partitions Markings
 - 1. Each fire-resistance rated partition, smoke partition, or other wall requiring protected openings is to be marked as such as defined below.
 - a. Location: Mark walls in accessible concealed floor, floor-ceiling, and attic spaces.
 - b. Spacing: Markings shall be located within 15 feet of the end of each wall and at intervals not exceeding 30 feet measured horizontally along the wall or partition.
 - c. Lettering: Stenciled letters a minimum of 3 inches in height with a minimum 3/8 inch stroke in a color contrasting with the wall material (typically black) paint. Markings shall be one of the following, appropriate to the partition type, as indicated on plans.
 - 1) "SMOKE PARTITION PROTECT ALL OPENINGS".
 - 2) "#-HR FIRE BARRIER PROTECT ALL OPENINGS" where #-HR is as indicated on the Drawings.
 - "#-HR FIRE WALL PROTECT ALL OPENINGS" where #-HR is as indicated on the Drawings.

3.4 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. 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 09 21 16

SECTION 09 30 00 - TILING

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. Ceramic Tile.
 - 2. Accessories as required for a complete installation.
- B. Related Sections:
 - 1. Section 09 05 61 Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.

1.3 REFERENCE STANDARDS

- A. ANSI A108.1a American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 2023.
- B. ANSI A108.1b Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set, Modified Dry-Set, or Improved Modified Dry-Set Cement Mortar; 2023.
- C. ANSI A108.1c Contractor's Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set, Modified Dry-Set, or Improved Modified Dry-Set Cement Mortar; 2023.
- D. ANSI A108.2 American National Standard General Requirements: Materials, Environmental and Workmanship; 2019.
- E. ANSI A108.4 American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesive or Water Cleanable Tile-Setting Epoxy Adhesive; 2023.
- F. ANSI A108.5 Setting of Ceramic Tile with Dry-Set Cement Mortar, Modified Dry-Set Cement Mortar, EGP (Exterior Glue Plywood) Modified Dry-Set Cement Mortar, or Improved Modified Dry-Set Cement Mortar; 2023.
- G. ANSI A108.6 American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grout Epoxy; 2023.
- H. ANSI A108.8 American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout; 1999 (Reaffirmed 2024).
- I. ANSI A108.9 American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 2023.
- J. ANSI A108.10 American National Standard Specifications for Installation of Grout in Tilework; 2017 (Reaffirmed 2022).
- K. ANSI A108.11 American National Standard Specifications for Interior Installation of Cementitious Backer Units; 2023.
- L. ANSI A108.12 Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Modified Dry-Set Mortar; 2023.
- M. ANSI A108.13 American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone; 2005 (Reaffirmed 2021).
- N. ANSI A108.19 American National Standard Specifications for Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method Bonded with

Modified Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar; 2020.

- O. ANSI A137.1 American National Standard Specifications for Ceramic Tile; 2022.
- P. TCNA (HB) Handbook for Ceramic, Glass, and Stone Tile Installation; 2025.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Pre-Installation Meeting: Convene a pre-installation meeting one week before starting work of this section; require attendance by affected installers.

1.5 SUBMITTALS

- A. Refer to Section 01 33 00 Submittal Procedures for submittal procedures.
- B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.
- C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
- D. Samples: Mount tile and apply grout on two plywood panels, minimum 18 by 18 inches (457 by 457 mm) in size illustrating pattern, color variations, and grout joint size variations.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- F. Master Grade Certificate: Submit for each type of tile, signed by the tile manufacturer and tile installer.
- G. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.
- H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 1. Refer to Section 01 60 00 Product Requirements for additional provisions.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum five years of documented experience.
- B. Installer Qualifications:
 - 1. Company specializing in performing tile installation, with minimum of five years of documented experience.
 - 2. Installer Certification:

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.8 FIELD CONDITIONS

- A. Do not install solvent-based products in an unventilated environment.
- B. Maintain ambient and substrate temperature above 50 degrees F (10 degrees C) and below 100 degrees F (38 degrees C) during installation and curing of setting materials.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
 - 1. Ceramic Tile:
 - 2. Tile Setting and Grout Materials: Those manufactured by tile manufacturers named above or any of the following as approved by tile manufacturer for use with their tile and to suit application.
- B. Substitutions: Refer to Section 01 25 13 Product Substitution Procedures.

1. Manufacturers and fabricators not listed must have a minimum of 5 years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered. Submit as a substitution.

2.2 TILE SCHEDULE

- A. Tile Type T-1 Cove Base:
 - 1. Basis of Design:
 - a. Products manufactured by Dal-Tile Corp..
 - b. Line: Classic, Color Wheel.
 - c. Color: Biscuit K175.
 - d. Finish: Semi-Gloss.
 - 2. Material: Ceramic.
 - 3. Size: 4 by 6 inches.
- B. Tile Type T-2 Field Tile:
 - 1. Basis of Design:
 - a. Products manufactured by Dal-Tile Corp..
 - b. Line: Classic, Color Wheel.
 - c. Color: Biscuit K175.
 - d. Finish: Semi-Gloss.
 - 2. Material: Ceramic.
 - 3. Size: 4 by 6 inches.

2.3 CERAMIC TILE

- A. Composition: ANSI A137.1 standard grade.
- B. Size: As scheduled.
- C. Thickness: Refer to Basis of Design product.
- D. Shape: As scheduled.
- E. Surface Finish: As scheduled.
- F. Color(s): As scheduled.
- G. Trim Units: Matching bead, cove, and surface bullnose shapes in sizes coordinated with field tile.

2.4 TRIM AND ACCESSORIES

- A. Ceramic Trim: Matching bullnose, double bullnose, cove base, and cove ceramic shapes in sizes coordinated with field tile.
 - 1. Manufacturers: Same as for tile.
- B. Metal Trim: Refer to Section 05 75 00 Decorative Formed Metal.

2.5 SETTING MATERIALS

- A. Provide setting and grout materials from same manufacturer.
- B. Use setting method recommended by TCNA.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that subfloor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.
- 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 subfloor surfaces are dust free and free of substances that could impair bonding of setting materials to subfloor surfaces.

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- D. Cementitious Subfloor Surfaces: Verify that substrates are ready for tiling installation by testing for moisture and alkalinity (pH).
 - 1. Test in accordance with Section 09 05 61 Common Work Results for Flooring Preparation.
 - 2. Obtain instructions if test results are not within limits recommended by tiling material manufacturer and setting material manufacturer.
 - 3. Follow moisture and alkalinity remediation procedures in Section 09 05 61 Common Work Results for Flooring Preparation.

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 backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of setting material to a feather edge.
- E. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

3.3 INSTALLATION - GENERAL

- A. Install tile, thresholds, and stair treads and grout in accordance with applicable requirements of ANSI A108.1a through ANSI A108.19, 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. Align floor joints.
- 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. Install non-ceramic trim in accordance with manufacturer's instructions.
- G. Sound tile after setting. Replace hollow sounding units.
- H. Keep control and expansion joints free of mortar, grout, and adhesive.
- I. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
- J. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.
- K. 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 - FLOORS - THIN-SET METHODS

A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F113, dry-set or latex-Portland cement bond coat, with standard grout, unless otherwise indicated.

3.5 INSTALLATION - WALL TILE

3.6 CLEANING

A. Clean tile and grout surfaces.

3.7 PROTECTION

A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION 09 30 00

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SECTION 09 51 00 - ACOUSTICAL CEILINGS

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. Suspended metal grid ceiling system.
 - 2. Suspended plastic grid ceiling system.
 - 3. Acoustical units.
 - 4. Supplementary acoustical insulation above ceiling.
- B. Related Sections:
 - 1. Section 01 61 16 Volatile Organic Compound (VOC) Content Restrictions.

1.3 REFERENCE STANDARDS

- A. ASCE 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.
- B. ASTM A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.
- C. ASTM A666 Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2023.
- D. ASTM B209/B209M Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
- E. ASTM C423 Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2017.
- F. ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2021.
- G. ASTM C635/C635M Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.
- H. ASTM C636/C636M Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019.
- I. ASTM C665 Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2023.
- J. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials; 2023d.
- K. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials; 2022.
- L. ASTM E580/E580M Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2022.
- M. ASTM E795 Standard Practices for Mounting Test Specimens During Sound Absorption Tests; 2016.
- N. ASTM E1264 Standard Classification for Acoustical Ceiling Products; 2023.
- O. ASTM E1414/E1414M Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum; 2021a.
- P. CHPS (HPPD) High Performance Products Database; Current Edition at www.chps.net/.

- Q. ISO 14644-1 Cleanrooms and associated controlled environments Part 1: Classification of air cleanliness by particle concentration; 2015.
- R. ITS (DIR) Directory of Listed Products; Current Edition.
- S. NFPA 286 Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth; 2024.
- T. UL (FRD) Fire Resistance Directory; Current Edition.
- U. UL (GGG) GREENGUARD Gold Certified Products; Current Edition.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- B. Do not install acoustical units until after interior wet work is dry.

1.5 SUBMITTALS

- A. Refer to Section 01 33 00 Submittal Procedures, for submittal procedures.
- B. Shop Drawings: Indicate grid layout and related dimensioning.
- C. Product Data: Provide data on suspension system components and acoustical units.
- D. Evaluation Service Reports: Show compliance with specified requirements.
- E. Samples: Submit two samples 6 by 6 inch (150 by 150 mm) in size illustrating material and finish of acoustical units, including edge.
- F. Samples: Submit two samples each, 6 inches (150 mm) long, of suspension system main runner, cross runner, and perimeter molding.
- G. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- H. Designer's Qualification Statement.
- I. Manufacturer's Qualification Statement.
- J. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Refer to Section 01 60 00 Product Requirements, for additional provisions.
 - 2. Extra Acoustical Units: Quantity equal to 5 percent of each type installed, to a minium of one box of each..

1.6 QUALITY ASSURANCE

- A. Designer Qualifications for Seismic Design: Perform under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed at the State in which the Project is located.
- B. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.7 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F (16 degrees C), and maximum humidity of 55 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
 - 1. Acoustic Panels:
 - a. Armstrong World Industries, Inc.: www.armstrongceilings.com.
 - b. Acoustic Ceiling Products, Inc.: www.acpideas.com.
 - c. Acoustics First Corporation: www.acousticsfirst.com.
 - d. CertainTeed Corporation: www.certainteed.com.
 - e. Hunter Douglas Architectural: www.hunterdouglasarchitectural.com.
 - f. Nelson Industrial, Inc: www.nelsonii.com/arch.
 - g. Rockfon, LLC: www.rockfon.com.
 - h. TECHLITE: www.techlite.com.
 - i. USG Corporation: www.usg.com/ceilings.
- B. Substitutions: Refer to Section 01 25 13 Product Substitution Procedures.
 - 1. Manufacturers and fabricators not listed must have a minimum of 5 years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered. Submit as a substitution

2.2 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Ceiling systems designed to withstand the effects of earthquake motions determined according to ASCE 7 for Seismic Design Category D, E, or F and complying with the following:
 - 1. Local authorities having jurisdiction.
 - 2. ICC-ES Evaluation Report No. _____.

2.3 PANELS

- A. General Requirements: ASTM E1264, Class A.
 - 1. VOC Content: Refer to Section 01 61 16 Volatile Organic Compound (VOC) Content Restrictions.
 - 2. VOC Content: Certified as Low Emission by one of the following:
 - a. Product listing in UL (GGG).
 - b. Product listing in CHPS (HPPD).
- B. Acoustical Ceiling Panels (ACP-1): Painted mineral fiber, with the following characteristics:
 - 1. Basis of Design:
 - a. Baroque manufactured by CertainTeed Corporation.
 - 2. Classification: ASTM E1264 Type III.
 - a. Form: 2, water felted.
 - b. Pattern: "C and D" perforated, small holes and fissured.
 - 3. Size: 24 by 24 inches (610 by 610 mm).
 - 4. Thickness: 5/8 inch (16 mm).
 - 5. Minimum NRC Range: 0.55, determined in accordance with ASTM E1264.
 - 6. Ceiling Attenuation Class (CAC): 33, determined in accordance with ASTM E1264.
 - 7. Panel Edge: Trim.
 - 8. Color: As indicated on Drawings.
 - 9. Suspension System: As indicated on Drawings.

2.4 SUSPENSION SYSTEM(S)

A. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.

> Acoustical Ceilings 09 51 00 - 3
1. Materials:

a. Aluminum Grid: Aluminum sheet, ASTM B209/B209M.

- B. Exposed Suspension System: Hot-dipped galvanized steel grid and cap.
 - 1. Structural Classification: Intermediate-duty, when tested in accordance with ASTM C635/C635M.
 - 2. Profile: Tee; 15/16 inch (24 mm) face width.
 - 3. Finish: Baked enamel.
- C. Enclosure for Recessed Ceiling Fixtures: Mineral fiber insulation box enclosure with foil facing on exterior side for placement over recessed ceiling light fixture; flame spread index of 25 and smoke development index of 0 (zero) when tested in accordance with ASTM E84.
 - 1. Light Fixture Size: As indicated on Drawings.
 - 2. Insulation Thickness: 1-1/4 inch (31.8 mm), nominal.
 - Thermal Resistance: R-value (RSI-value) of 4.2 (degrees F hour square foot) per Btu (0.74 (K sq m)/W) per inch at 75 degrees F (24 degrees C), minimum, when tested according to ASTM C518.
 - 4. Provide enclosure with documented noise reduction coefficient (NRC) in accordance with ASTM C423 of at least 1.00 at 2 inches (51 mm) thick.
 - 5. Provide enclosure with documented ceiling attenuation class (CAC) in accordance with ASTM E1414/E1414M.

2.5 ACCESSORIES

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
- B. Hanger Wire: 12 gauge, 0.08 inch (2 mm) galvanized steel wire.
- C. Perimeter Moldings: Same metal and finish as grid.
 - 1. Size: As required for installation conditions and specified Seismic Design Category.
 - 2. Angle Molding: L-shaped, for mounting at same elevation as face of grid.
 - 3. Shadow Molding: Shaped to create a perimeter reveal.
 - a. Basis of Design:
 - 1) AXIOM AXM7575STR manufactured by Armstrong World Industries, Inc.
 - 4. Channel Molding: U-shaped, for hold-down type installations.
 - 5. Gaskets For Perimeter Moldings: Closed-cell foam, factory-applied to molding.
 - 6. Acoustical Sealant For Perimeter Moldings: Non-hardening, non-skinning, for use in conjunction with suspended ceiling system.
- D. Acoustical Insulation: Refer to Section 07 21 00 Thermal Insulation.
- E. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.

3.2 PREPARATION

- A. Install after major above-ceiling work is complete.
- B. Coordinate the location of hangers with other work.
- C. Provide hanger clips during steel deck erection. Provide additional hangers and inserts as required.

3.3 INSTALLATION - SUSPENSION SYSTEM

- A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.
- B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- C. Lay out system to a balanced grid design with edge units no less than 50 percent of acoustical unit size.
- D. Locate system on room axis according to reflected plan.
- E. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
 - 1. Install in bed of acoustical sealant.
 - 2. Use longest practical lengths.
 - 3. Overlap and rivet corners.
- F. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- G. Seismic Suspension System, Seismic Design Category C: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Maintain a 3/8 inch (9 mm) clearance between grid ends and wall.
- H. Seismic Suspension System, Seismic Design Categories D, E, F: Hang suspension system with grid ends attached to the perimeter molding on two adjacent walls; on opposite walls, maintain a 3/4 inch (19 mm) clearance between grid ends and wall.
- I. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- J. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- K. Support fixture loads using supplementary hangers located within 6 inches (152 mm) of each corner, or support components independently.
- L. Do not eccentrically load system or induce rotation of runners.
- M. Form expansion joints as detailed. Form to accommodate plus or minus 1 inch (25 mm) movement. Maintain visual closure.
- N. Install light fixture boxes constructed of gypsum board above light fixtures in accordance with fire rated assembly requirements and light fixture ventilation requirements.

3.4 INSTALLATION - ACOUSTICAL UNITS

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Lay directional patterned units with pattern parallel to longest room axis.
- D. Fit border trim neatly against abutting surfaces.
- E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- F. Cutting Acoustical Units:
 - 1. Cut to fit irregular grid and perimeter edge trim.
 - 2. Make field cut edges of same profile as factory edges.
 - 3. Double cut and field paint exposed reveal edges.
- G. Where round obstructions occur, provide preformed closures to match perimeter molding.

- H. Lay acoustical insulation for a distance of 48 inches (1219 mm) either side of acoustical partitions as indicated.
- I. Install hold-down clips on each panel to retain panels tight to grid system; comply with fire rating requirements.
- J. Install hold-down clips on panels within 8 ft (2.5 m) of an exterior door.
- K. Install plastic lay-in panels at following minimum distance from conventional light sources:
 - 1. Halogen, 60 Watt: 14 inches (355 mm) minimum.
 - 2. Incandescent, 120 Watt: 15 inches (380 mm) minimum.
 - 3. Quartz Halogen, 500 Watt: 23 inches (584 mm) minimum.
- L. Install safety clips on wood veneer panels 2 inches (51 mm) from outside edge of panel and at 24 inches (610 mm) on center.
 - 1. Use wire ties to attach safety clips.
- M. Install wood veneer trim using aluminum L angle to attach to suspended grid system as required for application.

3.5 TOLERANCES

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet (3 mm in 3 m).
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION 09 51 00

SECTION 09 65 00 - RESILIENT 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:
 - 1. Resilient tile flooring
 - 2. Installation accessories.
- B. Related Sections:
 - 1. Section 01 61 16 Volatile Organic Compound (VOC) Content Restrictions.
 - 2. Division 26: Electrical floor cover plates for installation of resilient flooring specified in this section.

1.3 REFERENCE STANDARDS

- A. ASTM E648 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2023.
- B. ASTM F1066 Standard Specification for Vinyl Composition Floor Tile; 2023.
- C. NFPA 253 Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 2023.
- D. RFCI (RWP) Recommended Work Practices for Removal of Resilient Floor Coverings; 2018.

1.4 SUBMITTALS

- A. Refer to Section 01 33 00 Submittal Procedures for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- C. Shop Drawings: Indicate seaming plans and floor patterns.
- D. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.
- E. Verification Samples: Submit two samples, 6 by 6 inch (150 by 150 mm) in size illustrating color and pattern for each resilient flooring product specified.
- F. Sustainable Design Submittal: Submit VOC content documentation for flooring and adhesives.
- G. Certification: Prior to installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of subfloor is acceptable.
- H. Manufacturer's Qualification Statement.
- I. Installer's Qualification Statement.
- J. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.
- K. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Refer to Section 01 78 23 Operation and Maintenance Data for additional provisions.
 - 2. Extra Flooring Material: Provide extra flooring material equal to 1 percent of each type and color of installed flooring, minimum of 10 square feet (1 square meters).

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing specified flooring with minimum three years documented experience.

Resilient Flooring 09 65 00 - 1 B. Installer Qualifications: Company specializing in installing specified flooring with minimum three years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Upon receipt, immediately remove any shrink-wrap and check materials for damage and the correct style, color, quantity and run numbers.
- B. Store all materials off of the floor in an acclimatized, weather-tight space.
- C. Maintain temperature in storage area between 55 degrees F (13 degrees C) and 90 degrees F (72 degrees C).
- D. Do not double stack pallets.

1.7 FIELD CONDITIONS

A. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F (21 degrees C) to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F (13 degrees C).

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work
- B. Substitutions: Refer to Section 01 25 13 Product Substitution Procedures.
 - 1. Manufacturers and fabricators not listed must have a minimum of 5 years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered. Submit as a substitution.

2.2 GENERAL REQUIREMENTS

- A. Unless noted otherwise, all Resilient Flooring shall comply with the following:
 - 1. VOC Content Limits: As specified in Section 01 61 16 Volatile Organic Compound (VOC) Content Restrictions.
 - 2. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.

2.3 RESILIENT TILE FLOORING

- A. General Requirements
 - 1. Size(s): As indciated on Drawings.
- B. Vinyl Composition Tile RFT-1 and RFT-2: Homogeneous, with color extending throughout thickness.
 - 1. Manufacturers: Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
 - a. Armstrong Flooring: www.armstrongflooring.com/#sle.
 - b. Johnsonite, a Tarkett Company: www.johnsonite.com/#sle.
 - 2. RFT-1 Basis of Design Product:
 - a. Manufacturer: Armstrong World Industries, Inc.
 - b. Collection: Match Existing, Similar to Standard Excelon.
 - c. Color: Match Existing, similar to Carnival White 52500.
 - 3. RFT-2 Basis of Design Product:
 - a. Manufacturer: Armstrong World Industries, Inc.
 - b. Collection: Raffia.
 - c. Color: 55800 Snowdrift.
 - d. Size: 12 by 24 inches
 - 4. Minimum Requirements: Comply with ASTM F1066, of Class corresponding to type specified.

5. Thickness: Refer to Basis of Design produ

2.4 ACCESSORIES

- A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.
- B. Adhesive for Vinyl and Rubber Flooring:
 - 1. Manufacturers: Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
 - a. H.B. Fuller Construction Products, Inc: www.tecspecialty.com.
 - b. Loba-Wakol, LLC: www.loba-wakol.com.
 - c. Stauf USA, LLC: www.staufusa.com.
- C. Moldings, Transition and Edge Strips:
 - 1. Metal Moldings, Transition and Edge Strips: Refer to Section 05 75 00 Decorative Formed Metal.
 - 2. Resilient Moldings, Transition and Edge Strips: Refer to Section 09 65 13 Resilient Base and Accessories.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.
- B. Verify that required floor-mounted utilities are in correct location.

3.2 PREPARATION

- A. Remove existing resilient flooring and flooring adhesives; follow the recommendations of RFCI (RWP).
- B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
- C. Remove subfloor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with subfloor filler to achieve smooth, flat, hard surface.
- D. Prohibit traffic until filler is fully cured.
- E. Clean substrate.
- F. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

3.3 INSTALLATION - GENERAL

- A. Starting installation constitutes acceptance of subfloor conditions.
- B. Install in accordance with manufacturer's written instructions.
- C. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- D. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
 - 1. Metal Strips: Attach to substrate before installation of flooring using stainless steel screws.
 - 2. Resilient Strips: Attach to substrate using adhesive.
- E. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.
- F. Install flooring in recessed floor access covers, maintaining floor pattern.

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3.4 INSTALLATION - TILE FLOORING

- A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.
- B. Lay flooring with joints and seams parallel to building lines to produce symmetrical pattern unless noted otherwise.
- C. Install tile in pattern indicated on Drawings. Allow minimum 1/2 full size tile width at room or area perimeter.

3.5 CLEANING

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean in accordance with manufacturer's written instructions.

3.6 **PROTECTION**

A. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION 09 65 00

SECTION 09 65 13 - RESILIENT BASE AND ACCESSORIES

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. Resilient base, adhesive attached, in locations shown on drawings.
 - 2. Resilient subfloor transitions.

1.3 REFERENCE STANDARDS

A. ASTM F1861 - Standard Specification for Resilient Wall Base; 2021.

1.4 SUBMITTALS

- A. Product Data:
 - 1. Manufacturer's specifications and other data needed to demonstrate compliance with specified requirements.
 - 2. Manufacturer's installation instructions.
- B. Samples:
 - 1. Actual samples or color charts showing manufacturer's full range of colors, for Architect's selection (if selections are not already scheduled or otherwise indicated on the drawings).
 - 2. Actual 12-inch-long piece of base material in each color selected for approval.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers listed, whose product meets or exceeds the specifications are approved for use on the Project with Architect's approval. Other manufacturers must have a minimum of five (5) years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered.
 - 1. Burke Flooring.
 - 2. Flexco.
 - 3. Johnsonite.
 - 4. Mannington.
 - 5. Nora Rubber Products.
 - 6. Roppe Corp.
 - 7. Tarkett.

2.2 MATERIALS

- A. Standard Rubber Base (typical except where extended toe or other type of base is specifically indicated on drawings, e.g., at athletic flooring or elsewhere) (RB-1):
 - 1. Quality Standard: ASTM F1861.
 - 2. Material: Rubber, vulcanized, Type TS, Group I, Styles A and B. Vinyl base and Type TP are not acceptable.
 - 3. Manufacturing Method: Group I (solid, homogeneous)
 - 4. Style: Topset cove; rolls of greatest length available, cut to length required to minimize joints.
 - 5. Minimum Thickness: Full 1/8 inch (3.2 mm)
 - 6. Color(s): Steel Gray.
 - 7. Height: 4 inches, unless indicated otherwise
 - 8. Corners: Job-Formed.

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- 9. Basis of Design Product: Pinnacle manufactured by Roppe Corp.
- B. Adhesive: Rubber-based type; same brand as base or as recommended and approved by base manufacturer to suit application.
- C. Other Materials: Provide other materials, not specifically described but required for a complete and proper installation.

2.3 EXTRA STOCK

- A. Deliver to Owner:
 - 1. percent, or one (1) unopened carton of each color, type and size of base selected, whichever is greater.
 - 2. One (1) gallon container of each type adhesive used for base.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions under which Work of this Section will be performed. Report unsatisfactory conditions to Architect in writing. Do not proceed until unsatisfactory conditions are corrected.

3.2 PREPARATION

- A. Prepare substrates to receive base as recommended by base manufacturer.
- B. Verify substrates are smooth and ready to receive resilient base. Grind high spots and fill low spots with latex cementitious filler as required.
- C. Starting Work indicates acceptance of existing conditions.

3.3 INSTALLATION

- A. General:
 - 1. Install materials only after finishing operations, including painting, have been completed and after permanent heating and cooling system is operating.
 - 2. Verify that moisture content of concrete slabs, building air temperature, and relative humidity are within the limits recommended by the manufacturers of the materials used.
- B. Installing Base:
 - 1. Install base where shown on the Drawings in accordance with manufacturer's instructions.
 - 2. Use factory-preformed exterior corners, and factory preformed or job-mitered interior corners, as indicated on the drawings or directed by Architect.

3.4 CLEANING AND PROTECTING

A. Remove excess adhesive and other blemishes from exposed surfaces, using neutral cleaner recommended by the manufacturer of the resilient materials.

END OF SECTION 09 65 13

SECTION 09 81 00 - ACOUSTIC INSULATION

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. Fiberglass batt acoustical insulation.
 - 2. Sprayed cellulose fiber acoustical insulation.
- B. Related Sections:
 - 1. Section 09 21 16 Gypsum Board Assemblies: Acoustically-rated partitions.
 - 2. Section 09 90 00 Painting and Coating: Painting of spray-applied acoustic insulation.

1.3 REFERENCE STANDARDS

- A. ASTM C423 Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2017.
- B. ASTM C553 Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013 (Reapproved 2019).
- C. ASTM C612 Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2014 (Reapproved 2019).
- D. ASTM C665 Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2023.
- E. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials; 2023d.
- F. ASTM E605/E605M Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members; 2019 (Reapproved 2023).
- G. ASTM E736/E736M Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members; 2019 (Reapproved 2023).
- H. ASTM E759/E759M Standard Test Method for Effect of Deflection on Sprayed Fire-Resistive Material Applied to Structural Members; 1992 (Reapproved 2023).

1.4 SYSTEMS DESCRIPTION

- A. Contractor must use a total system, encompassing equipment, fiber and adhesive as supplied and tested by the manufacturer. No substitution.
- B. Fibers supplied under this Section shall have each bag coded with the date and lot number of manufactures and retained samples shall be kept by the manufacturer for not less than 1 year.
- C. Contractor must be licensed and trained by the manufacturer.

1.5 SUBMITTALS

- A. Product Data:
 - 1. Manufacturer's specifications and other data needed to prove compliance with specified requirements.
 - 2. Manufacturer's installation instructions.
- B. Certification:
 - 1. Manufacturer's certificate that the product meets or exceeds specified requirements.
 - 2. Manufacturer's written certification that product contains no asbestos, and that sprayedcellulose fiber acoustical insulation contains no fiberglass or other man made mineral fibers.

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1.6 QUALITY ASSURANCE

A. Qualifications:

- 1. Manufacturers.
- 2. Suppliers.
- 3. Installers/Applicators.

1.7 MOCK-UPS

- A. Batt Insulation: Not required
- B. Spray-Applied Insulation: A representative surface of not less than 100 square feet shall be sprayed and approved by the Architect prior to proceeding with finished work.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Materials shall be delivered in original, unopened containers bearing name of manufacturer, product identification and reference to U.L. testing.
- B. Store materials off ground, under cover and away from damp surfaces and keep material dry at all times.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
 - 1. Batt Insulation:
 - 2. Spray-Applied Acoustic Insulation:
- B. Substitutions: Refer to Section 01 25 13 Product Substitution Procedures.
 - 1. Manufacturers and fabricators not listed must have a minimum of 5 years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered. Submit as a substitution.

2.2 MATERIALS

- A. Acoustic Glass Batt Insulation for Use in Partitions and Over Acoustical Panel Ceilings:
 - 1. Basis of Design:
 - 2. Surface Burning Characteristics per ASTM E84:
 - a. Flame Spread: 25 or less.
 - b. Smoke Developed: 50 or less.
 - 3. Thickness (minimum):
 - a. 3-1/2 inches where indicated on Drawings.
 - b. 6 inches above Acoustic Ceiling Systems as indicated on Drawings.
- B. Acoustic Glass Batt Insulation for Use over Open Ceiling Panels:
 - 1. Basis of Design: SelectSound Black Acoustic Blanket manufactured by Owens-Corning.
 - 2. Type: ASTM C553, Types I and II.
 - 3. Surface Burning Characteristics per ASTM E84:
 - a. Flame Spread: 25 or less.
 - b. Smoke Developed: 50 or less.
 - 4. Acoustical Performance:
 - a. ASTM C423; Mounting Type A: Material placed against solid backing.
 - b. Noise Reduction Coefficient (NRC): 0.75 as indicated in Drawings.
 - 5. Thickness (minimum):
 - a. 1 inches (NRC 0.75).
- C. Acoustic Glass Board Insulation:
 - 1. Basis of Design:

- a. SelectSound Black Acoustic Board manufactured by Owens-Corning.
- 2. Type: ASTM C612 types IA and IB.
- 3. Surface Burning Characteristics per ASTM E84:
 - a. Flame Spread: 25 or less.
 - b. Smoke Developed: 50 or less.
- 4. Acoustical Performance:
 - a. ASTM C423; Mounting Type A: Material placed against solid backing.
 - b. Noise Reduction Coefficient (NRC): 0.75 as indicated in Drawings.
- 5. Thickness (minimum):
 - a. 1 inches (NRC 0.75).
- D. Spray-Applied Acoustic Insulation:
 - 1. Color: Black, unless noted otherwise.
 - 2. Field-tested bond strength report per ASTM E736/E736M: Tested at over 5 years / Not less than 400 psf / Not less than 600 times its weight at one (1) inch
 - 3. Fire Resistance per ASTM E84: Tested at a minimum of five (5) inch thickness, Class I
 - a. Flame Spread: Not To Exceed Five (5).
 - b. Smoke Development: Not To Exceed Five (5).
 - 4. Sprayed insulation shall meet appropriate Building Code Requirements.
 - 5. Thickness: 1-1/2 inch minimum typical. Thickness shall be determined in accordance with ASTM E605/E605M field test procedure.
 - 6. Bond Deflection per ASTM E759/E759M: 6 inch deflection in 10 foot span no spalling or delamination.
 - 7. Cohesive Strength at time of application per Method WS-2000: >700 Grams.
 - 8. Basis of Design: "K-13 Spray-On-Systems" manufactured by International Cellulose Corporation.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine all surfaces and report all unsatisfactory conditions in writing to Architect. The work shall not proceed until unsatisfactory conditions are corrected.

3.2 PREPARATION

- A. Provide masking, drop cloths or other satisfactory coverings for all materials/surfaces, which are not to receive insulation to prevent damage from over-spray.
- B. Surfaces to receive spray insulation shall be inspected prior to application to determine if priming/sealing is required to insure bonding and/or to prevent discoloration caused by migratory stains. Prime accordingly.
- C. Work shall be coordinated with other trades whose work may be affected or have an effect on the installation of the sprayed cellulose fiber.

3.3 INSTALLATION

- A. Installation, clean up and curing shall be accomplished according to the manufacturer's recommendations and common construction standards.
- B. Provide natural or mechanical ventilation continuously to properly cure the insulation.

3.4 PROTECTION

A. Protect finished installation from damage caused by work of other trades.

END OF SECTION 09 81 00

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SECTION 09 90 00 - 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. Surface preparation and field painting of exposed items and surfaces.
 - 2. Field preparation and painting of factory primed metal products and fabrications.
 - 3. Accessories necessary for a complete installation.
- B. Related Sections:
 - 1. Section 01 61 16 Volatile Organic Compound (VOC) Content Restrictions.

1.3 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; Current Edition.
- B. ASTM D16 Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2019.
- C. ASTM D2486 Standard Test Methods for Scrub Resistance of Wall Paints; 2017.
- D. ASTM D2805 Standard Test Method for Hiding Power of Paints by Reflectometry; 2011 (Reapproved 2018).
- E. ASTM D4828 Standard Test Methods for Practical Washability of Organic Coatings; 1994.
- F. ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2023.
- G. ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.
- H. SCAQMD 1113 Architectural Coatings; 1977, with Amendment (2016).

1.4 **DEFINITIONS**

- A. Standard coating terms defined in ASTM D16 apply.
 - 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85 degree meter.
 - 2. Eggshell refers to low sheen finish with a gloss range between 20 and 35 when measured at a 60 degree meter.
 - 3. Semi-gloss refers to medium sheen finish with a gloss range between 35 and 70 when measured at a 60 degree meter.
 - 4. Gloss refers to high sheen finish with a gloss range more than 70 when measured at a 60 degree meter.

1.5 SUBMITTALS

- A. Refer to Section 01 33 00 Submittal Procedures for submittal procedures.
- B. Product Data: Submit technical data and information for block fillers, primers, paints, and coatings, including label analysis and instructions for handling, storing, and applying each coating material proposed for use.
 - 1. Indicate manufacturer's instructions for special surface preparation procedures, substrate conditions requiring special attention.
 - 2. Material List: Provide inclusive list of required coating materials. Indicate each material and cross reference specific coating, finish system, and application. Identify each material

by manufacturer's catalog number, series, and general classification.

- C. Samples: Submit for each type of paint system and in each color and gloss of topcoat.
 - 1. Provide stepped samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing samples for review. Resubmit until required sheen, color, and texture are achieved.
 - 2. Provide list of material and application for each coat of each sample. Label each sample as to location and application.
 - 3. Submit samples on following substrates for review of color and texture only:
 - a. Concrete: Provide two 4 inch square samples for each color and finish.
 - b. Concrete Masonry: Provide two 4 inch x 8 inch samples of masonry, with mortar joint in the center, for each finish and color.
 - c. Painted Wood: Provide two 12 inch square samples of each color and material on hardboard.
 - d. Ferrous and Nonferrous Metals: Provide two 4 inch square samples of flat metal and two 8 inch long samples of solid metal for each color and finish.
- D. Product List: Submit list of including each paint system, color, and location of application. Use same product and location designations indicated in Finish Schedule.

1.6 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Comply with Federal and local toxicity and air quality regulations and with Federal requirements on content of for heavy metals including but not limited to: lead and mercury. Do not use solvents in paint products that contribute to air pollution.
 - 2. Performance and Durability:
 - a. ASTM D16 Standard Terminology for Paint, Related Coatings, Materials, and Applications.
 - b. ASTM D2486 Standard Test Method for Scrub Resistance of Interior Wall Paint.
 - c. ASTM D2805 Standard Test Method for Hiding Power of Paints by Reflectometry.
 - d. ASTM D4828 Standard Test Method for Practical Washability of Organic Coatings.
- B. Applicator Qualifications: A firm or individual having minimum 5 years documented experience in applying paints and coatings similar in material, design, and extent to those indicated.
- C. Source Limitations: Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, product name, product code, color designation, VOC content, batch date, environmental handling, surface preparation, application, and use instructions.
- C. Paint Materials: Store at a minimum of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.
- D. Handling: Maintain a clean, dry storage area to prevent contamination or damage to materials.

1.8 FIELD CONDITIONS

- A. Apply waterborne paints when temperatures of surfaces to be painted and surrounding air are between 50 degrees F and 90 degrees F (10 degrees and 32 degrees C).
- B. Do not thin or add water to waterbased paints, including waterbased alkyds.
- C. Weather Conditions:
 - 1. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

- Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 degrees F (3 degrees C) above dew point; or to damp or wet surfaces.
- 3. Minimum Application Temperatures for Water based Paints: Between 50 degrees F (10 degrees C) and 90 degrees F (32 degrees C).
- D. Apply solvent thinned paints when temperatures of surfaces to be painted and surrounding air are between 45 degrees F. and 95 degrees F (7 degrees F and 35 degrees C).
 - 1. Minimum Application Temperature for Varnish Finishes: 65 degrees F (18 degrees C) for interior or exterior, unless required otherwise by manufacturer's instructions.
 - 2. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by the manufacturer during application and drying periods.
- E. Provide lighting level of 80 foot candles (860 lux) measured midheight at substrate surface.
- F. Labels: Do not paint over Underwriters Laboratories, Factory Mutual, other code required labels, or equipment name, identification, performance rating, or nomenclature plates.

1.9 WARRANTY

- A. Written warranty signed by the manufacturer and the installer in which the manufacture and installer agree to repair or replace paint and primers that fail within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Flaking or delamination of paint with the substrate.
 - b. Rust, scale, similar imperfections due to improper surface preparation.
 - c. Thinning or watering of paint beyond that considered acceptable of paint manufacturer.
 - d. Failure to achieve dry film thickness (DFT) recommended by manufacturer for each coat in a paint system.
 - e. Deterioration or loss of color of paint beyond normal weathering.
 - 2. Warranty Period: One year from date of Substantial Completion.

1.10 EXTRA MATERIALS

- 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. Paint: 2 percent, but not less than 1 gallon (3.8 L) of each material and color applied.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
 - 1. Benjamin Moore & Co.: www.benjaminmoore.com.
 - 2. PPG Industries, Inc.: www.ppgpaints.com.
 - 3. The Sherwin-Williams Company: www.sherwin-williams.com.
- B. Substitutions: Refer to Section 01 25 13 Product Substitution Procedures.
 - 1. Manufacturers and fabricators not listed must have a minimum of 5 years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered. Submit as a substitution

2.2 MATERIALS

- A. Basis of Specifications: The Sherwin-Williams Company.
- B. Subject to compliance with requirements, provide first quality, 100% acrylic, commercial or industrial products of one of the specified manufacturers. Residential products are not permitted.

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- C. Proprietary Names: Paint Schedule is based on a single manufacturer for convenience. Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that named products are required to the exclusion of comparable products of specified manufacturers. Furnish product technical data, including percent solids by weight and volume; VOC content limits and emissions data; and certificates of performance for comparable paint products of specified manufacturer.
- D. Subject to compliance with requirements, provide first quality, 100% acrylic, commercial or industrial products of one of the specified manufacturers. Residential products are not permitted.
- E. Material Compatibility: Provide each paint system including block fillers, primers, and finish coats, that are compatible with one another and with substrates indicated under conditions of service and application, demonstrated by manufacturer based on testing and field experience.
- F. Material Quality: Provide manufacturer's best quality commercial paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint material containers not displaying manufacturer's product identification will not be acceptable. Residential quality paint products are not permitted.
- G. Chemical Components of Interior Paints and Coatings: Provide products complying with limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and SCAQMD 1113.
 - 1. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
 - 2. Restricted Components: Paints and coatings shall not contain components restricted by the EPA and SCAQMD 1113.
- H. Materials not specifically indicated but required to achieve the finishes specified, of commercial quality.
- I. Patching Materials: Latex filler compatible with paint systems.
- J. Fastener Head Cover Materials: Latex filler.

2.3 SOURCE QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke to engage the services of a qualified testing agency to sample paint materials.
 - 1. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to site, samples may be taken at the site. Samples will be identified, sealed, and certified by testing agency.
 - 2. Testing agency will perform tests for compliance with product requirements.
 - 3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

2.4 PAINT COLOR SCHEDULE

- A. Colors (P-#):
 - 1. P-1 Typical Ceilings and Soffits:
 - a. Manufacturer: The Sherwin-Williams Company.
 - b. Color: Incredible SW7028.
 - c. Sheen: Eggshell.
 - d. Locations: All gypsum board ceilings and soffits unless noted otherwise.
 - 2. P-2 Typical Interior Walls:
 - a. Manufacturer: The Sherwin-Williams Company.

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- b. Color: Incredible SW7028.
- c. Sheen: Eggshell.
- d. Locations: All gypsum board walls unless noted otherwise.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements for maximum moisture content and conditions affecting performance of the work.
- B. Test substrates after repairing and cleaning substrates but prior to application of paint and coatings.
 - 1. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - a. Concrete: 12 percent.
 - b. Fiber Cement Board: 12 percent.
 - c. Masonry (Clay and CMUs): 12 percent.
 - d. Wood: 15 percent.
 - e. Gypsum Board: 12 percent.
 - f. Plaster: 12 percent.
 - 2. Test cementitious and plaster cement/stucco for alkalinity (pH).
- C. Gypsum Board Substrates: Verify taped joints are tapes and finishing compound is sanded smooth.
- D. Plaster Substrates: Verify plaster has fully cured. Verify existing plaster is in good condition and can receive new paint coating.
- E. Spray Textured Ceiling Substrates: Verify surfaces are dry.
- F. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
 - 1. Verify previously painted surfaces can be stripped to bare substrate, repaired if necessary, and prepared to receive new paint system consisting of primer and two top coats at a minimum.
 - a. Note: Previously painted surfaces have failed to accept new paint systems. Determined cause of failure and take corrective measures to ensure each surface accepts new paint system. Failure of new paint system is not permitted.
- G. Commence paint and coating application after correcting unsatisfactory conditions and surfaces are dry. Application of coating indicates applicator's acceptance of surfaces and conditions.

3.2 ITEMS TO RECEIVE PAINT

- A. Generally, all new items that are normally painted in any typical building, including but not limited to the following list:
 - 1. All ferrous metal.
 - 2. All exterior galvanized metal.
 - 3. All exterior wood.
 - 4. All interior wood.
 - 5. All prime coated hardware.
 - 6. All exposed pipe, plumbing, ductwork, conduit, outlet boxes and electrical cabinets, excluding those located in mechanical rooms.
 - 7. All metal grilles, except aluminum, unless otherwise indicated.
 - 8. All exposed gypsum board surfaces, including all mechanical rooms.
 - 9. Miscellaneous other items which normally require painting or are scheduled to be painted.
 - 10. Consult plans, finish schedule, details and specifications for other trades as all items usually field painted or finish will be considered as part of the Contract.

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- 11. All exposed mechanical equipment and electrical equipment.
- 12. Traffic lanes and parking spaces including fire lanes and crosswalks.
- 13. Rolling doors.
- 14. Bollards.
- 15. Loose lintels.
- 16. Refer to MEP specifications for additional items to receive paint.
- B. All work where a coat of material has been applied must be inspected and approved by Architect before application of succeeding specified coat, otherwise no credit for coat applied will be given. Notify Architect when a particular coat has been completed for inspection and approval. Apply coats of material in strict accordance with manufacturer's specifications except where requirements of these specifications are in excess of manufacturer's requirements. Paint all sight exposed pipe and plumbing only after all mechanical work and tests have been completed.

3.3 PREPARATION

- A. Coordination of Work: Review work in which primers are provided to ensure compatibility of the total system for various substrates. Notify Architect of anticipated problems when using materials specified over substrates primed by others.
 - 1. Pre-Primed Substrates: Inspect existing conditions in which primers are factory applied to ensure compatibility of the total system for each substrate. Notify Architect of anticipated problems when using the materials specified over factory primed or pre-primed substrates.
 - 2. Existing Painted Surfaces: Inspect previously painted surfaces to ensure compatibility of the existing paints with new paint system for each substrate. Notify Architect of anticipated problems.
 - 3. Correct defects and clean surfaces affecting bond with paint system. Remove existing paints exhibiting loose surface defects showing signs of rust, scale, or delamination.
 - 4. Seal marks which may bleed through surface finishes.
- B. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified. Provide barrier coats over incompatible primers or remove and reprime. If removal is impractical or impossible because of size or weight of item, provide surface applied protection before surface preparation and painting.
 - Remove hardware and hardware accessories, plates, lighting fixtures, and similar items that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface applied protection before surface preparation and painting. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
 - 2. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface applied protection if any.
 - 3. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 4. Clean and prepare surfaces to receive paint according to manufacturer's written instructions for each substrate condition and as specified. Provide barrier coats over incompatible primers, existing paint or coating, or remove and reprime.
 - 5. Correct defects and clean surfaces affecting bond with paint or coating system. Remove existing coatings exhibiting loose surface defects. Seal marks which may bleed through surface finishes.
- C. Cleaning: Before applying paint or surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning. Schedule cleaning and painting so dust and contaminants from the cleaning process will not fall on wet, newly painted surfaces.

- 1. Remove incompatible primers, including factory applied primers, and reprime substrate with compatible primers or apply barrier coat as necessary to produce paint systems indicated.
- 2. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- 3. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.
- 4. Galvanized Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- 5. Aluminum Substrates: Remove surface oxidation.
- D. Mildew and Mold Removal: Remove mildew and mold by high power washing (pressure range of 1500 to 4000 psi) with solution of trisodium phosphate and bleach. If substrate is too soft for high power washing, scrub substrate with solution. Rinse with clean water and allow surface to dry.
- E. Protective Coverings: Provide protections for duration of the work, including covering furnishings and decorative items. Protect and mask adjacent finishes and components against damage, marking, overpainting, and injury. Clean and repair or replace damage caused by painting.
- F. Renovated Surfaces: Clean surface free of loose dirt and dust. Except at gypsum board surfaces, remove existing paint and coatings to bare substrate and prepare substrates to receive new paint system. Test substrate to verify it will bond with primer and receive new paint system without failure. If test fails, clean surface to base substrate and apply barrier coat. Retest to verify surface will accept new paint system.
 - 1. Remove surface film preventing proper adhesion and bond.
 - 2. Wash glossy paint with a solution of sal soda and rinse thoroughly.
 - 3. Remove loose, blistered, and defective paint and varnish; smooth edges with sandpaper.
 - 4. Clean corroded iron and steel surfaces.
 - 5. Repair and blend into portland cement plaster.
 - 6. Prime bare surfaces.
 - 7. Tone varnished surfaces with stain bringing to uniform color.
 - 8. If existing surfaces cannot be put in acceptable condition for finishing by customary cleaning, sanding, and puttying operations, notify Owner and do not proceed until correcting unsatisfactory conditions.
- G. Cementitious Substrates: Prepare concrete surfaces to receive paint. Remove efflorescence, chalk, dust, dirt, grease, oils, release agents, mold, mildew, and existing paint. Roughen as necessary to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
 - 1. Use abrasive blast cleaning methods if recommended by paint manufacturer.
 - 2. Do not paint surfaces if moisture content or alkalinity of surfaces exceeds that permitted in manufacturer's written instructions.
 - a. Determine alkalinity and moisture content of surfaces by performing appropriate pH testing. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct condition prior to application of paint.
 - Anhydrous Calcium Chloride Test:ASTM F1869 . Proceed with installation after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.3 kg of water/92.9 sq. m).
 - c. Relative Humidity Test: Using in situ probes, ASTM F2170. Proceed with installation after substrates have obtained percent relative humidity level recommended by paint manufacturer.

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- d. Perform additional moisture tests when recommended by manufacturer. Proceed with installation when moisture content complies with that permitted in manufacturer's written instructions.
- e. Remove stains caused by weathering of corroding metals with solution of sodium metasilicate after thoroughly wetting with water. Allow to thoroughly dry.
- 3. Clean concrete floors to receive paint or coating with a 5 percent solution of muriatic acid or etching cleaner. Flush floors with clean water to remove acid; neutralize with ammonia, rinse, allow to dry; vacuum before painting.
- H. Ferrous Metals: Clean ungalvanized ferrous metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC recommendations.
 - 1. Blast steel surfaces clean as recommended by paint system manufacturer and according to SSPC-SP 6/NACE No. 3.
 - 2. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
 - 3. Touch up bare areas and shop-applied prime coats that have been damaged. Wire brush, clean with solvents recommended by paint manufacturer, and touch up with same primer as the shop coat.
- I. Galvanized Ferrous Metal Substrates: Clean galvanized surfaces with nonpetroleum based solvents leaving surface free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- J. Shop Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop primed surfaces.
- K. Aluminum Substrates: Clean surfaces to remove oil, grease, surface oxidation, and contaminants in accordance with SSPC SP-1 Solvent Cleaning. Lightly abrade surface with a nonmetallic pad.
- L. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.
- M. Plaster/Stucco Substrates: Remove contaminants, release agents, curing compounds, efflorescence, chalk, mold, mildew, and similar deterrents. Spot patch existing plaster to eliminate blisters, buckles, excessive crazing, and to check cracking, dryouts, efflorescence, sweat outs, and similar deflects the prevent plaster from bonding with paint or coatings. Sand or texture repair or patch to match adjacent finish and to remove trowel marks and arrises.
 - 1. Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
 - 2. Deep Cracks: Clean out and fill deep cracks with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
 - 3. Do not paint surfaces if moisture content or alkalinity of surfaces exceeds that permitted in manufacturer's written instructions. Test for alkali using litmus paper.
 - 4. Allow patching and repair compounds to set and cure before painting.
- N. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.
- O. Wood Substrates:
 - 1. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - 2. Sand surfaces that will be exposed to view, and dust off.

- 3. Prime, stain, or seal wood to be painted. Prime edges, ends, faces, undersides, and back sides of wood, including cabinets, counters, cases, and paneling.
- 4. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
- 5. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- P. Pipe Covering and Insulation: Clean to remove loose, foreign, and objectionable material before applying sealing coat.
- Q. Preparation of Substrates for Wallcovering: Prime and seal substrate with release coat in accordance with wallcovering manufacturer's recommendations for substrate.
 - 1. Assure compatibility with product of wall covering manufacturer.
 - 2. Fill indentations in substrate and prime with opaque white primer before applying release coat.
 - 3. Apply release coat in accordance with manufacturer's recommendations.
- R. Barrier Coat: Provide barrier coats over incompatible primers or remove and reprime. Notify Owner in writing of anticipated problems using specified finish coat material over previously coated substrates.
- S. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
 - 1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
 - 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 - 3. Do not use thinners for water based paints.
 - 4. Tinting: Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.4 APPLICATION

- A. Comply with manufacturer's written instructions and recommendations applicable to substrates and paint systems indicated.
 - 1. The term exposed surfaces includes areas visible when permanent or built in fixtures, grilles, convector covers, covers for finned tube radiation, and similar components are in place. Extend coatings in these areas to maintain system integrity and provide desired protection.
 - 2. Use applicators and techniques suited for paint and substrate indicated.
 - 3. Provide finish coats compatible with primers.
 - 4. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 5. Paint exposed surfaces. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces.
 - a. Field painting of exposed surfaces include bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory applied final finish.
 - b. Areas visible when permanent or built in fixtures, grilles, convector covers, covers for finned tube radiation, and similar components are in place.
 - c. Extend coatings in areas, as required, to maintain system integrity and provide desired protection.

- 6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
- 7. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
- 8. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- 9. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- 10. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or surface imperfections. Cut in sharp lines and color breaks.
- 11. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
- 12. Provide finish coats compatible with primers used.
- 13. Sand lightly between each succeeding enamel or varnish coat.
- B. Items not to Receive Paint: Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
- C. Applicators: Apply paints and coatings by brush, roller, spray, or applicators recommended by manufacturer.
 - 1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
 - 2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool recommended by manufacturer for material and texture required.
 - 3. Spray Equipment: Use airless spray equipment with orifice size recommended by manufacturer for material and texture required.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
 - 1. Measure film thickness on magnetic surfaces by use of Elcometer thickness gauge and on nonmagnetic surfaces by pit gauge or Tooke Gauge.
- E. Application: Apply first coat to surfaces that have been cleaned, pretreated, or prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
 - 1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer.
 - 2. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished after removing rust and scale and priming or touching up surface sand if acceptable to topcoat manufacturers.
 - 3. If undercoats, stains, or conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive dry film thickness equivalent to that of flat surfaces.
 - 4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried and cured to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.
- F. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.

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- 1. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- 2. Prime and paint uninsulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, heat exchangers, tanks, ductwork, conduit, switchgear, and paintable insulation except where items are prefinished.
- 3. Paint interior surfaces of air ducts, and convector and baseboard heating cabinets visible through grilles and louvers with one coat of flat black paint, to visible surfaces. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.
- 4. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.
- 5. Color code equipment, piping, conduit, and exposed duct work in accordance with requirements indicated. Color band and identify with flow arrows, names, and numbering.
- 6. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.
- 7. Concealed Members: Wherever steel and metal parts to receive paint are built into and concealed by construction, paint as specified for exposed parts so finish painting is complete before members are concealed.
- G. Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work: Painting is limited to items exposed in equipment rooms and occupied spaces.
 - 1. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
 - 2. Prime and paint uninsulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, heat exchangers, tanks, ductwork, conduit, switchgear, and paintable insulation except where items are prefinished.
 - 3. Paint interior surfaces of air ducts, and convector and baseboard heating cabinets visible through grilles and louvers with one coat of flat black paint, to visible surfaces. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.
 - 4. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.
 - 5. Color code equipment, piping, conduit, and exposed duct work in accordance with requirements indicated. Color band and identify with flow arrows, names, and numbering.
 - 6. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.
- H. Electrostatic Spray Painting: Apply coating electrostatically to finished surfaces, free from runs, sags, visible overlaps, holidays, craters, pinholes and other defects detrimental to protective and decorative qualities of coating.
 - 1. Thickness of Coatings: 1.5 to 2.0 mils dry film thickness. Measure dry film thickness with magnetic gauge.
 - 2. Use application techniques, equipment, materials, and preparation procedures recommended by manufacturer.
- I. Block Fillers: Apply block fillers to concrete masonry block at rate to ensure complete coverage with pores filled.
- J. Prime Coats: Before applying finish coats, apply prime coat, recommended by manufacturer, to material required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or defects due to insufficient sealing.
- K. Finish Coats: Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks. If undercoats or other conditions show through topcoat, apply additional

Painting and Coating 09 90 00 - 11 coats until cured film has a uniform paint finish, color, and appearance without bleed through.

- 1. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or surface imperfections is not acceptable.
- 2. Transparent (Clear) Finishes: Use multiple coats to produce glass smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections. Provide satin finish for final coats.
- L. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.
- M. Touch Up: Touch up marred, scraped, and blemished areas of surfaces which were factory primed or previously coated.
 - 1. Prepare and touch up scratches, abrasions, and blemishes and remove foreign matter before proceeding with succeeding coats.
 - 2. Touch up marred, scraped, and blemished areas of factory primed or previously coated surfaces.
 - 3. Feather touch up coating overlapping minimum 2 inches onto adjacent unblemished areas producing smooth, uniform surface.
 - 4. As soon after erection and installation as possible, touch up fasteners, welded surfaces and surroundings, field connections, and areas on which shop coat has been abraded or damaged with specified primer before corrosion and other damage occurs from exposure.

3.5 FIELD QUALITY CONTROL

- A. Dry Film Thickness (DFT) Testing: Tests for dry film thickness may be determined by using a Tooke Scale and microgroover, an electronic scanner, or the Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
 - 1. Contractor shall touch up and restore painted surfaces damaged by testing.
 - 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.6 CLEANING AND PROTECTION

- A. It is of the upmost important to the Owner that the sites remain in a safe, clean, and well maintained condition. At the end of each day, leave the site ready to use by staff and students. Protect staff and students and the learning environment throughout the work.
- B. Cleanup: At the end of each day, remove empty cans, rags, rubbish, and discarded paint materials from site. After completion of painting work, clean glass and paint spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work. After related work is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.
- E. At completion of painting activities, touch up and restore damaged or defaced painted surfaces.
- F. Waste Management: Legally dispose of unused paint and paint containers in accordance with manufacturer's recommendations and environmental regulations.

PART 4 SCHEDULES

4.1 GENERAL

- A. The following is a schedule of typical painted items and does not specifically include every item that is to receive paint but should establish type and quality of finish for all items normally included in a complete paint job.
- B. Overhead Painting (Ceilings, Exposed to Structure Above, etc.)
 - 1. Use a dryfall system comparable to system defined below for substrate.

4.2 SHERWIN-WILLIAMS APPLICATION SCHEDULES

- A. Exterior Surfaces: Note: Exterior surfaces are divided into two (2) different categories, based upon color and level of graffiti resistance required. System 1 will be used when standard earthtone colors or neutral colors are specified, and System 2 will be used when bright colors (primary reds, yellows, and oranges) are specified and/or when a graffiti resistant coating is required.
 - 1. Galvanized Metal:
 - a. Surface Preparation: Acid etch galvanized surfaces that have not weathered at least six (6) months prior to beginning painting operations.
 - b. Primer: One (1) coat Pro-Cryl Pro Industrial Universal Primer (B66W310)
 - c. Finish: Two (2) coats Sher-Cryl HPA High Performance Acrylic (B66W300).
 - 2. Galvanized Metal: Chloramine environment.
 - a. Surface Preparation: Acid etch galvanized surfaces that have not weathered at least six (6) months prior to beginning painting operations.
 - b. Primer: One (1) coats Macropoxy 646 (B58-600).
 - c. Finish: Two (2) coats Acrolon 218 HS Acrylic Polyurethane (B65-600).
 - 3. Un-galvanized Metal:
 - a. Primer: One (1) coat Pro-Cryl Pro Industrial Universal Primer (B66W310).
 - b. Finish: Two (2) coats Sher-Cryl HPA High Performance Acrylic (B66W300).
 - 4. Pre-Finished Metal Surfaces:
 - a. Surface Preparation: As recomme3nded by primer manufacturer.
 - b. Primer: One (1) coat Bond-Plex Waterbased Acrylic.
 - 1) OR
 - 2) Primer: One (1) coat DTM Bonding Primer.
 - c. Finish: Two (2) coats Bond-Plex Waterbased Acrylic.
 - 5. Concrete and CMU:
 - a. Primer/Finish: (2) coats Loxon XP Exterior Waterproofing System, 14-18 mils wet, 6.4 8.3 mils dry per coat.
 - 6. Tilt-Up Concrete:
 - a. Primer: One (1) coat Loxon Concrete and Masonry Primer Sealer (LX02W50), 5.3-8.0 mils wet, 2.1-3.2 mils dry.
 - b. Finish: One (1) coat Conflex UltraCrete Acrylic Textured Finish, Texture: Fine, Base Color: CF17W0811 Medium Extra White.
 - 7. Wood (Includes plywood siding and wooden trim):
 - a. Primer: One (1) coat A-100 Latex Wood Primer (B42W41).
 - b. Finish: Two (2) coats A-100 Acrylic Gloss (A8 ser.).
 - 8. Fiber-Cement Materials:
 - a. Primer: One (1) coat Loxon Masonry Primer (A24W300).
 - b. Finish: Two (2) coats A-100 Acrylic Gloss (A8 Series).
 - 9. Parking Line and Driveway Paint: Setfast Waterborne Yellow (TM225) (meets Federal Specification (FS) TTP-1952-B)
- B. Interior Surfaces:

- 1. Concrete Substrates, Non-Traffic Surfaces and Clay Masonry:
 - a. Latex System:
 - 1) Prime Coat: Loxon Concrete & Masonry Primer Sealer, A24W8300, at 8.0 mils (0.203 mm) wet, 3.2 mils (0.081 mm) dry.
 - 2) Intermediate Coat: Latex, interior, matching topcoat.
 - 3) Topcoat:
 - (a) Flat: ProMar 200 Zero VOC Latex Flat, B30-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat.
 - (b) Low Sheen: ProMar 200 Zero VOC Latex Low Sheen Eg-Shel, B24-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat.
 - (c) Eggshell: ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series, at 4.0 mils (0.102 mm) wet, 1.7 mils (0.043 mm) dry, per coat.
 - (d) Semi-Gloss: ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat.
 - (e) Gloss: ProMar 200 Zero VOC Gloss, B21-12650 Series, at 4.0 mils (0.102 mm) wet, 1.4 mils (0.036 mm) dry, per coat.
 - b. Water-Based Light Industrial Coating System:
 - 1) Prime Coat: Loxon Concrete & Masonry Primer Sealer, A24W8300, at 8.0 mils (0.203 mm) wet, 3.2 mils (0.081 mm) dry.
 - 2) Intermediate Coat: Latex, interior, matching topcoat.
 - 3) Topcoat:
 - (a) Eggshell: Pro Industrial Pre-Catalyzed Water Based Epoxy, K45-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
 - (b) Semi-Gloss: Pro Industrial Pre-Catalyzed Water Based Epoxy, K46-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
- 2. Concrete Substrates, Pedestrian Traffic Surfaces:
 - a. Latex Floor Enamel System:
 - 1) First Coat: Floor paint, latex, slip-resistant, matching topcoat.
 - 2) Topcoat: Floor paint, latex, slip-resistant, low gloss: S-W ArmorSeal Tread-Plex, B90 Series, at 1.5 to 2.0 mils (0.038 to 0.051 mm) dry per coat.
- 3. Flat: Galvanized Metal:
 - a. Latex System:
 - Prime Coat: One (1) coat Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, at 5.0 to 10 mils (0.127 to 0.254 mm) wet, 2.0 to 4.0 mils (0.051 to 0.102 mm) dry.
 - 2) Intermediate Coat: Water-based acrylic, interior, matching topcoat.
 - 3) Topcoat:
 - (a) Semi-Gloss: Pro Industrial Acrylic Semi-Gloss Coating, B66-650 Series, at 2.5 to 4.0 mils (0.064 to 0.102 mm) dry, per coat.
 - (b) Gloss: Pro Industrial Acrylic Gloss Coating, B66-660 Series, at 2.5 to 4.0 mils (0.064 to 0.102 mm) dry, per coat.
 - b. Water-Based Dry-Fall System:
 - 1) Top Coat:
 - (a) Flat: S-W Pro Industrial Waterborne Acrylic Dryfall Flat, B42-181 Series, at 6.0 mils (0.152 mm) wet, 1.5 mils (0.038 mm) dry.
 - (b) Eggshell: Pro Industrial Waterborne Acrylic DryFall Eg-Shel, B42-82, at 6.0 mils (0.152 mm) wet, 1.9 mils (0.048 mm) dry.
 - (c) Semi-Gloss: Pro Industrial Waterborne Acrylic DryFall Semi-Gloss, B42-83, at 5.8 mils (0.147 mm) wet, 2.3 mils (0.058 mm) dry.
 - c. Water-Based Light Industrial Coating System:
 - 1) Prime Coat: Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, at 5.0 to 10 mils (0.127 to 0.254 mm) wet, 2.0 to 4.0 mils (0.051 to 0.102 mm) dry.

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- 2) Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
- 3) Top Coat:
 - (a) Eggshell: Pro Industrial Pre-Catalyzed Water Based Epoxy, K45-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
 - (b) Semi-Gloss: Pro Industrial Pre-Catalyzed Water Based Epoxy, K46-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
- 4. Shop-Primed Ferrous Metals (Use for metal doors and frames and miscellaneous metal items):
 - a. Shop coat by others.
 - b. One (1) coat over Steel Kem Kromik Primer B50series.
 - c. One (1) coat over Aluminum Metal Procryl Primer B60series.
 - d. Two (2) coats PM200 Alkyd Semi-Gloss B34series.
- 5. Wood: (Painted)
 - a. Latex System:
 - 1) Prime Coat: PrepRite ProBlock Primer Sealer, B51-620 Series, at 4.0 mils (0.102 mm) wet, 1.4 mils (0.036 mm) dry.
 - 2) Intermediate Coat: Latex, interior, matching topcoat.
 - 3) Topcoat:
 - (a) Eggshell: ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series, at 4.0 mils (0.102 mm) wet, 1.7 mils (0.043 mm) dry, per coat.
 - (b) Semi-Gloss: ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat.
 - (c) Gloss: ProMar 200 Zero VOC Gloss, B21-12650 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
 - b. Water/Alkyd Urethane System:
 - 1) Prime Coat: Premium Wall & Wood Primer, B28W8111, at 4.0 mils (0.102 mm) wet, 1.8 mils (0.046 mm) dry.
 - 2) Intermediate Coat: Water-based alkyd-urethane, interior, matching topcoat.
 - 3) Topcoat:
 - (a) Semi-Gloss: Pro Industrial Waterbased Alkyd Urethane Semi-Gloss, B53-1150 Series, at 4.0 mils (0.102 mm) wet, 1.4 mils (0.036 mm) dry, per coat.
 - (b) Gloss: Pro Industrial Waterbased Alkyd Urethane Gloss, B53-1050 Series, at 4.0 mils (0.102 mm) wet, 1.4 mils (0.036 mm) dry, per coat.
 - c. Water-Based Light Industrial Coating:
 - 1) Prime Coat: PrepRite ProBlock Primer Sealer, B51-620 Series, at 4.0 mils (0.102 mm) wet, 1.4 mils (0.036 mm) dry.
 - 2) Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
 - 3) Topcoat:
 - (a) Eggshell: Pro Industrial Pre-Catalyzed Water Based Epoxy, K45-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
 - (b) Semi-Gloss: Pro Industrial Pre-Catalyzed Water Based Epoxy, K46-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
- 6. Wood: (Stained)
 - a. Stain: SherWood BAC Wiping Stain (S64 Series).
 - b. Finish (First Coat): Wood Classics Polyurethane Varnish (A67 Series).
 - c. Finish (Second Coat): Wood Classics Polyurethane Varnish (A67 Series).
- 7. Gypsum Board and Plaster:
 - a. Latex System:
 - 1) Prime Coat: ProMar 200 Zero VOC Latex Primer, B28W2600, at 4.0 mils (0.102 mm) wet, 1.0 mils (0.025 mm) dry.

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- 2) Intermediate Coat: Latex, interior, matching topcoat.
- 3) Topcoat:
 - (a) Flat: ProMar 200 Zero VOC Latex Flat, B30-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat.
 - (b) Low Sheen: ProMar 200 Zero VOC Latex Low Sheen Enamel, B24-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat.
 - (c) Eggshell: ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series, at 4.0 mils (0.102 mm) wet, 1.7 mils (0.043 mm) dry, per coat.
 - (d) Semi-Gloss: ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series, at 4.0 mils (0.102 mm) wet, 1.6 mils (0.041 mm) dry, per coat.
 - (e) Gloss: ProMar 200 Zero VOC Gloss, B21-12650 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
- b. Water-Based Light Industrial Coating System:
 - 1) Prime Coat: ProMar 200 Zero VOC Latex Primer, B28W2600, at 4.0 mils (0.102 mm) wet, 1.0 mils (0.025 mm) dry.
 - 2) Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
 - 3) Topcoat:
 - (a) Eggshell: Pro Industrial Pre-Catalyzed Waterbased Epoxy, K45-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
 - (b) Semi-Gloss: Pro Industrial Pre-Catalyzed Waterbased Epoxy, K46-151 Series, at 4.0 mils (0.102 mm) wet, 1.5 mils (0.038 mm) dry, per coat.
- 8. CMU: (Epoxy) Kitchens, bathrooms, laboratories, etc.
 - a. Primer: Two (2) coats Heavy Duty Block Filler (B42W46).
 - b. Finish: Two (2) coats Water-Based Catalyzed Epoxy (B70/B60).
- 9. Pipe and fittings, including but not limited to copper and brass, at kitchen areas (but excluding aluminum, stainless steel, nickel and chrome plated pipe and fittings):
 - a. Primer: One (1) coat; product recommended for the substrate by the finish coat manufacturer.
 - b. Finish: Two (2) coats bright aluminum paint.

END OF SECTION 09 90 00

SECTION 10 11 00 - VISUAL DISPLAY UNITS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications, and the Sections included under Division 01 General Requirements and References, are included as a part of this Section as though bound herein.

1.2 SUMMARY

- A. Section Includes:
 - 1. Porcelain enamel steel markerboards.
- B. Related Sections:
 - 1. Section 06 10 00 Rough Carpentry: Blocking and supports.
 - 2. Section 06 20 00 Finish Carpentry: Wood frame and marker rails.
 - 3. Section 09 21 16 Gypsum Board Assemblies: Concealed supports in metal stud walls.
 - 4. Section 09 90 00 Painting and Coating: Finishing of wood frame and marker rail.
 - 5. Section 10 22 39 Folding Panel Partitions: Installation of visual display boards on operable partitions.

1.3 REFERENCE STANDARDS

- A. 16 CFR 1201 Safety Standard for Architectural Glazing Materials; Current Edition.
- B. ANSI A135.4 Basic Hardboard; 2012 (Reaffirmed 2020).
- C. ANSI A208.1 American National Standard for Particleboard; 2022.
- D. ANSI Z97.1 American National Standard for Safety Glazing Materials Used in Buildings -Safety Performance Specifications and Methods of Test; 2015 (Reaffirmed 2020).
- E. ASTM A424/A424M Standard Specification for Steel, Sheet, for Porcelain Enameling; 2018.
- F. ASTM C208 Standard Specification for Cellulosic Fiber Insulating Board; 2012, with Editorial Revision (2019).
- G. ASTM C1036 Standard Specification for Flat Glass; 2021.
- H. ASTM C1048 Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2018.
- I. ASTM C1172 Standard Specification for Laminated Architectural Flat Glass; 2019.
- J. ASTM C1396/C1396M Standard Specification for Gypsum Board; 2017.
- K. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials; 2023d.
- L. ASTM F793/F793M Standard Classification of Wall Coverings by Use Characteristics; 2020.
- M. ICC (IBC) International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- N. ICC (IFC) International Fire Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- O. PS 1 Structural Plywood; 2023.
- P. Texas Accessibility Standards (TAS) 2012 Texas Accessibility Standards (TAS); 2012.

1.4 SUBMITTALS

- A. Refer to Section 01 33 00 Submittal Procedures, for submittal procedures.
- B. Product Data: Provide manufacturer's data on chalkboard, porcelain enamel steel markerboard, glass markerboard, tackboard, tackboard surface covering, trim, and accessories.

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- C. Shop Drawings: Indicate wall elevations, dimensions, joint locations, special anchor details.
- D. Samples: Color charts for selection of color and texture of chalkboard, porcelain enamel steel markerboard, glass markerboard, tackboard, tackboard surface covering, and trim.
- E. Samples: Two, 2 by 2 inches (50 by 50 mm) in size illustrating materials and finish, color and texture of chalkboard, porcelain enamel steel markerboard, glass markerboard, tackboard, tackboard surfacing, and trim.
- F. Test Reports: Show compliance to specified surface burning characteristics requirements.
- G. Manufacturer's printed installation instructions.
- H. Manufacturer's Qualification Statement.
- I. Maintenance Data: Include data on regular cleaning, stain removal, and _____.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.6 WARRANTY

- A. Refer to Section 01 77 00 Closeout Procedures, for additional warranty requirements.
- B. Provide five year warranty for chalkboard and markerboard to include warranty against discoloration due to cleaning, crazing or cracking, and staining.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
- B. Substitutions: Refer to Section 01 25 13 Product Substitution Procedures.
 - 1. Manufacturers and fabricators not listed must have a minimum of 5 years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered. Submit as a substitution.

2.2 DESCRIPTION

- A. Regulatory Requirements:
 - 1. Accessibility:
 - a. Texas Accessibility Standards (TAS).
 - 2. Building Code:
 - a. Comply with applicable requirements of International Building Code ICC (IBC).
 - 3. Fire Code:
 - a. Comply with applicable requirements of International Fire Code ICC (IFC).

2.3 VISUAL DISPLAY UNITS

- A. Porcelain Enamel Steel Markerboards:
 - 1. Color: White.
 - 2. Steel Face Sheet Thickness: 24 gauge, 0.0239 inch (0.61 mm).
 - 3. Core: Particleboard, manufacturer's standard thickness, laminated to face sheet.
 - 4. Backing: Aluminum foil, laminated to core.
 - 5. Size: As indicated on drawings.
 - 6. Frame: Same as for chalkboards.
 - 7. Frame: Extruded aluminum , with concealed fasteners.
 - 8. Frame Profile: As indicated on drawings.
 - 9. Frame Finish: Anodized, natural.
 - 10. Accessories: Provide marker tray and map rail.

Visual Display Units 10 11 00 - 2

- 11. Basis of Design Products:
 - a. Claridge Products and Equipment, Inc.

2.4 MATERIALS

- A. Porcelain Enameled Steel Sheet: ASTM A424/A424M, Type I, Commercial Steel, with fired-on vitreous finish.
- B. Hardboard for Chalk Surface: ANSI A135.4 Tempered type.
- C. Plywood: PS 1 Grade C-D , softwood.
- D. Hardboard for Cores: ANSI A135.4, Class 1 Tempered, S2S (smooth two sides).
- E. Particleboard: ANSI A208.1; wood chips, set with waterproof resin binder, sanded faces.
- F. Fiber Board: ASTM C208, cellulosic fiber board.
- G. Foil Backing: Aluminum foil sheet, 0.005 inch thick (0.13 mm thick).
- H. Aluminum Sheet Backing: 27 gauge, 0.014 inch (0.36 mm) thick.
- I. Steel Sheet Backing: 28 gauge, 0.0149 inch (0.38 mm), galvanized.
- J. Adhesives: Type used by manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that internal wall blocking is ready to receive work and positioning dimensions are as indicated on shop drawings.
- C. Verify flat wall surface for frameless adhesive-applied boards.

3.2 PREPARATION

- A. Acclimatize tackable wall panels by removing from packaging in installation area not less than 24 hours before application.
- B. Remove switchplates, wall plates, and surface-mounted fixtures where tackable wall paneling is applied. Reinstall items on completion of installation.
- C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install boards in accordance with manufacturer's instructions.
- B. Install with top of marker tray at 30 inches (760 mm) above finished floor.
- C. Secure units level and plumb.
- D. Carefully cut holes in boards for thermostats.
- E. Install tackable wall panels in accordance with manufacturer's recommendations on specified substrates with concealed attachments.
 - 1. Fabricate re-wrapped edges where partial panels about each other, or adjacent surfaces or trim.
 - 2. Re-wrap top, bottom or side edges for cutting panels around door or window openings, abutting trim, protruding objects, and at other openings, including x-cut at receptacles, light switches, and other openings.
 - a. Wrap minimum 2 inches (51 mm) around back of panel.
 - b. Carefully cut fiber board, leaving vinyl wallcovering intact. Wrap wallcovering tightly around edge of board and adhere continuously around back of panel with manufacturer's recommended vinyl wallcovering adhesive.

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3.4 CLEANING

- A. Clean board surfaces in accordance with manufacturer's instructions.
- B. Cover with protective cover, taped to frame.
- C. Remove temporary protective cover at Date of Substantial Completion.
- D. Break-in slate chalkboards with a chalk and clean treatment.

END OF SECTION 10 11 00

SECTION 10 28 00 - TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements including but not limited to:
 - 1. Washroom accessories.
 - 2. Toilet accessories.
 - 3. Shower room accessories.
 - 4. Childcare accessories.
 - 5. Custodial accessories.
 - 6. Accessories necessary for a complete installation.

1.2 REFERENCE STANDARDS

- A. ASTM A153/A153M Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
- B. ASTM A666 Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2023.
- C. ASTM A1008/A1008M Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2023, with Editorial Revision.
- D. ASTM C1503 Standard Specification for Silvered Flat Glass Mirror; 2024.
- E. ASTM F446 Standard Consumer Safety Specification for Grab Bars and Accessories Installed in the Bathing Area; 2019.
- F. ISO 17966 Assistive products for personal hygiene that support users Requirements and test methods; Current.
- G. Texas Accessibility Standards (TAS) 2012 Texas Accessibility Standards (TAS); 2012.
- H. UL 60601 UL Standard for Safety Medical Electrical Equipment, Part 1: General Requirements for Safety; Current.

1.3 PERFORMANCE REQUIREMENTS

- A. Grab Bars:
 - 1. Grab bars and any wall or other surfaces adjacent to grab bars shall be free of sharp or abrasive elements and shall have rounded edges. The space around the grab bars shall be as follows:
 - a. 1-1/2 inches between the grab bar and the wall.
 - b. 1-1/2 inches minimum between the grab bar and projecting objects below and at the ends.
 - c. 12 inches minimum between the grab bar and projecting objects above.
 - 2. Grab Bars shall be designed to resist a single concentrated load of 250 lbs. applied in any direction at any point of the grab bar such as to produce the maximum load effect.

1.4 SUBMITTALS

- A. Product Data: Technical Data including construction details, material descriptions, dimensions of individual components and profiles, and finishes.
 - 1. Include anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
 - 2. Include electrical characteristics.
- B. Samples: Provide a sample to demonstrate each exposed product finish specified.
- C. Product Schedule: Show types, quantities, sizes, and installation locations by room of each accessory required. Identify locations using room designations indicated.

Toilet, Bath, and Laundry Accessories 10 28 00 - 1

D. Maintenance Data: Submit for inclusion in maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Accessibility Requirements: Comply with applicable requirements.
 - a. Texas Accessibility Standards (TAS).
- B. Source Limitations: Obtain products from single source from single manufacturer.

1.6 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.7 WARRANTY

- A. Mirrors: Written warranty signed by manufacturer in which manufacturer agrees to repair or replace mirrors that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, visible silver spoilage defects.
 - 2. Warranty Period: 15 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
 - 1. AJW Architectural Products.
 - 2. American Specialties, Inc.
 - 3. Bobrick Washroom Equipment, Inc.
 - 4. Bradley Corporation.
 - 5. Brey-Krause Manufacturing Co.
 - 6. Dyson: www.dyson.com.
 - 7. GAMCO Specialty Accessories; a division of Bobrick.
 - 8. Georgia Pacific.
 - 9. Tubular Specialties Manufacturing, Inc.
- B. Substitutions: Refer to 01 25 13 Product Substitution Procedures.
 - 1. Manufacturers and fabricators not listed must have a minimum of 5 years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered. Submit as a substitution

2.2 MATERIALS

- A. Stainless Steel: ASTM A666, Type 304, 0.031-inch (0.8-mm) minimum nominal thickness unless otherwise indicated
- B. Steel Sheet: ASTM A1008/A1008M, Designation CS (cold rolled, commercial steel), 0.036-inch (0.9-mm) minimum nominal thickness
- C. Galvanized Steel Mounting Devices: ASTM A153/A153M, hot dip galvanized after fabrication
- D. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamperand-theft resistant where exposed, and of galvanized steel where concealed
- E. Mirrors: ASTM C1503, Mirror Glazing Quality, clear glass mirrors, nominal 6.0 mm thick

2.3 COMPONENTS

- A. Underlavatory Guard: Insulating pipe covering for supply and drain piping assemblies that prevent direct contact with and burns from piping; allow service access without removing coverings.
 - 1. Material and Finish: Antimicrobial, molded plastic, white

2.4 FABRICATION

- A. Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least 250 lbf (1112 N), when tested according to ASTM F446.

3.2 ADJUSTING AND CLEANING

A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items. Remove temporary labels and protective coatings. Clean and polish exposed surfaces according to manufacturer's written recommendations.

PART 4 SCHEDULE

4.1 TOILET ACCESSORY SCHEDULE

- A. TA-1C Soap Dispensers Counter-Mounted:
 1. NOT USED.
- B. TA-1W Soap Dispensers Wall-Mounted:
 - 1. Mounting: Owner-Installed.
 - 2. Basis of Design: Owner-Furnished.
 - 3. Locations: Where indicated on Drawings.
- C. TA-2 Lavatory Mirrors, Typical:
 - 1. Mounting: Surface.
 - 2. Basis of Design: Bobrick B-290.
 - 3. Size: 24 inches by 48 inches.
 - 4. Location: At each lavatory.
- D. TA-2F Full-Length Mirrors:
 - 1. NOT USED.
- E. TA-3 Toilet Paper Dispensers:
 - 1. Mounting: Owner-Installed.
 - 2. Basis of Design: Owner-Furnished.
 - 3. Locations: At each water closet.
- F. TA-4 Paper Towel Dispensers:
 - 1. Mounting: Owner-Installed.
 - 2. Basis of Design: Owner.
 - 3. Locations: Where indicated on Drawings.
- G. TA-5 Grab Bars: (At Wheelchair-Accessible Water Closets):

Toilet, Bath, and Laundry Accessories 10 28 00 - 3
- 1. Size/Finish: 1-1/2 inch diameter satin stainless steel.
- 2. Basis of Design: Bobrick B-6806.
- 3. Mounting: Attach with concealed mounting kit. Mount parallel to floor.
- 4. Location: At each wheelchair-accessible water closet.
- H. TA-6 Sanitary Napkin Dispensers:
 - 1. NOT USED.
- I. TA-7 Sanitary Napkin Disposal: 1. NOT USED.
- J. TA-8 Shelf with Mop and Broom Holders and Hooks:1. NOT USED.
- K. TA-9 Grab Bars: (At Accessible Shower):1. NOT USED.
- L. TA-10A Folding Benches: Adult Height: 1. NOT USED.
- M. TA-10C Folding Benches, Child Height (15 inches (375 mm) seat height):
 1. NOT USED.
- N. TA-11 Clothing Hook:
 - 1. Mounting: Surface.
 - 2. Basis of Design: Bobrick B-6717.
 - 3. Locations: All shower locations.
 - 4. Toilet and Shower Partitions: If toilet and shower partitions are utilized, hooks are to be provided by the partition manufacturer(s) as part of their hardware package.
- O. TA-12 Shower Curtains, Rods and Hooks:1. NOT USED.
- P. TA-13 Electric Hand Dryers:
 - 1. NOT USED.
- Q. TA-14 Paper Towel Dispenser/Trash Receptacle Combination:1. NOT USED.
- R. TA-15 Grab Bars: (At Ambulatory-Accessible Toilet Compartments):1. NOT USED.
- S. TA-16 Baby Changing Station:1. NOT USED.
- T. TA-16A Adult Changing Station:1. NOT USED.
- U. TA-17R Trash Receptacle, Recessed:
 - 1. Mounting: Owner-Installed.
 - 2. Basis of Design: Owner-Furnished.
 - 3. Locations: As indicated on Drawings.
- V. TA-17U Trash Receptacle Undercounter:1. NOT USED.
- W. TA-18 Vertical Grab Bar:1. NOT USED.
- X. TA-19 Water Closet Cover Dispenser:1. NOT USED.
- Y. TA-20 Folding Utility Shelf: 1. NOT USED.

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Z. TA-21 - Hand Sanitizer: 1. NOT USED.

END OF SECTION 10 28 00

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SECTION 10 44 00 - FIRE PROTECTION SPECIALTIES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Fire extinguishers.
 - 2. Fire extinguisher cabinets.
 - 3. Accessories.
- B. Related Sections:
 - 1. Section 06 10 00 Rough Carpentry: Wood blocking product and execution requirements.
 - 2. Section 09 90 00 Painting and Coating: Field paint finish.

1.2 REFERENCE STANDARDS

- A. ASTM E814 Standard Test Method for Fire Tests of Penetration Firestop Systems; 2013a (Reapproved 2017).
- B. AWS D1.1/D1.1M Structural Welding Code Steel; 2020, with Errata (2023).
- C. AWS D1.2/D1.2M Structural Welding Code Aluminum; 2014, with Errata (2020).
- D. AWS D1.3/D1.3M Structural Welding Code Sheet Steel; 2018, with Errata (2022).
- E. AWS D1.6/D1.6M Structural Welding Code— Stainless Steel; Current.
- F. FM (AG) FM Approval Guide; Current Edition.
- G. ICC (IBC) International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- H. ICC (IFC) International Fire Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- I. NFPA 10 Standard for Portable Fire Extinguishers; 2022.
- J. Texas Accessibility Standards (TAS) 2012 Texas Accessibility Standards (TAS); 2012.
- K. UL (DIR) Online Certifications Directory; Current Edition.

1.3 SUBMITTALS

- A. Refer to Section 01 33 00 Submittal Procedures for submittal procedures.
- B. Product Data: Provide extinguisher operational features, extinguisher ratings and classifications, color and finish, anchorage details, and installation instructions.
- C. Shop Drawings: Indicate locations of cabinets, cabinet physical dimensions, rough-in measurements for recessed cabinets, locations of individual fire extinguishers, mounting measurements for wall bracket, installation procedures, and accessories required for complete installation.
- D. Manufacturer's Installation Instructions: Indicate special criteria and wall opening coordination requirements.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- F. Maintenance Data: Include test, refill or recharge schedules and re-certification requirements.

1.4 FIELD CONDITIONS

A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
 - 1. Fire Extinguishers:
 - a. Ansul, a brand of Tyco Fire Protection Products, a division of Johnson Controls International: www.ansul.com/#sle.
 - b. JL Industries, an Activar Construction Products Group, Inc. brand: www.activarcpg.com/#sle.
 - c. Kidde, a unit of United Technologies Corp: www.kidde.com/#sle.
 - d. Nystrom, Inc: www.nystrom.com/#sle.
 - e. Oval Fire Products: www.ovalfireproducts.com/#sle.
 - f. Potter-Roemer, a member of Morris Group International: www.potterroemer.com/#sle.
 - g. Pyro-Chem, a division of Johnson Controls International: www.pyrochem.com/#sle.
 - 2. Fire Extinguisher Cabinets and Accessories:
 - a. JL Industries, an Activar Construction Products Group, Inc. brand: www.activarcpg.com/#sle.
 - b. Kidde, a unit of United Technologies Corp: www.kidde.com/#sle.
 - c. Larsen's Manufacturing Co., a member of Morris Group International: www.larsensmfg.com/#sle.
 - d. Nystrom, Inc: www.nystrom.com.
 - e. Oval Fire Products: www.ovalfireproducts.com.
 - f. Potter-Roemer, a member of Morris Group International: www.potterroemer.com/#sle.

2.2 DESCRIPTION

- A. Regulatory Requirements:
 - 1. Accessibility:
 - a. Texas Accessibility Standards (TAS).
 - 2. Building Code:
 - a. Comply with applicable requirements of International Building Code ICC (IBC).
 - 3. Fire Code:
 - a. Comply with applicable requirements of International Fire Code ICC (IFC).
 - 4. Welding Qualifications: Qualify procedures and personnel according to the following:
 - a. Aluminum: AWS D1.2/D1.2M.
 - b. Sheet Steel: AWS D1.3/D1.3M.
 - c. Stainless Steel: AWS D1.6/D1.6M.
 - d. Steel: AWS D1.1/D1.1M.

2.3 FIRE EXTINGUISHERS

- A. Fire Extinguishers General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
 - 1. Provide extinguishers labeled by UL (DIR) or FM (AG) for purpose specified and as indicated.
- B. Multipurpose Dry Chemical Type Fire Extinguishers: Carbon steel tank, with pressure gauge.
 - 1. Basis of Design: Cosmic 10E manufactured by JL Industries.
 - 2. Stored Pressure Operated: Deep Drawn.
 - 3. Class: A:B:C type.
 - 4. Size: 10 pound (4.54 kg).
 - 5. Finish: Baked polyester powder coat, color to be selected by Architect.
 - 6. Temperature range: Minus 65 degrees F (Minus 54 degrees C) to 120 degrees F (49 degrees C).

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2.4 FIRE EXTINGUISHER CABINETS

A. General:

- 1. Basis of Design Product:
 - a. Cosmopolitan manufactured by JL Industries.
- 2. Size to accomodate indicated extinguisher and accessories.
- 3. Doors:
 - a. Door Glazing: Acrylic plastic, clear, 1/8 inch (3 mm) thick, flat shape and set in resilient channel glazing gasket.
- 4. Cabinet Mounting Hardware: Appropriate to cabinet, with pre-drilled holes for placement of anchors.
- 5. Fabrication: Weld, fill, and grind components smooth.
- 6. Finish of Cabinet Exterior Trim and Door: No.4 Brushed stainless steel.
- 7. Finish of Cabinet Interior: White enamel.
- B. Standard Cabinet Construction:
 - 1. Non-fire-resistance-rated.
 - 2. Formed primed steel sheet; 0.036 inch (0.9 mm) thick base metal.
- C. Cabinet Configuration: Surface Mounted.
 - 1. Trim: None.
 - 2. Provide cabinet enclosure with right angle inside corners and seams, and with formed perimeter trim and door stiles.

2.5 ACCESSORIES

A. Extinguisher Brackets: Formed steel, chrome-plated.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify rough openings for cabinet are correctly sized and located.

3.2 INSTALLATION

- A. Locate as indicated on Drawings, as directed by the Owner, and as follows:
 - 1. Provide a minimum of one Multipurpose Fire Extinguisher for each 6,000 sq. ft (557 sq. m), or part thereof, in the project scope, per NFPA 10 Table 6.2.1.1 or as indicated on Drawings, whichever is greater.
 - 2. Provide one Multipurpose Fire Extinguisher with wall bracket in each of the following locations:
 - a. Mechanical Rooms.
 - b. Electrical Rooms.
 - c. MDF/IDF/Telecommunications Rooms.
 - d. Fire Riser Rooms.
 - e. Auditoriums of 4000 square feet or less.
- B. Install in accordance with manufacturer's instructions.
- C. Install cabinets plumb and level in wall openings, such that it complies with accessibility requirements.
- D. Secure rigidly in place.
- E. Place extinguishers in cabinets.

3.3 MAINTENANCE

A. Refer to Section 01 77 00 - Closeout Procedures for additional requirements relating to maintenance service.

Fire Protection Specialties 10 44 00 - 3

B. Provide a separate maintenance contract for specified maintenance service.

END OF SECTION 10 44 00

SECTION 12 24 00 - WINDOW SHADES

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. Interior manual roller shades.
 - 2. Interior motorized roller shades.
 - 3. Interior skylight roller shades.
 - 4. Exterior manual roller shades.
 - 5. Exterior motorized roller shades.
 - 6. Accessories as required vor complete installation.
- B. Related Sections:
 - 1. Section 06 10 00 Rough Carpentry: Concealed wood blocking for attachment of headrail brackets.
 - 2. Section 26 27 26 Wiring Devices: Finish requirements for wall controls specified in this section.

1.3 **REFERENCE STANDARDS**

- A. ASTM G21 Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015, with Editorial Revision (2021).
- B. C2C (DIR) C2C Certified Products Registry; Cradle to Cradle Products Innovation Institute; Current Edition.
- C. NFPA 70 National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- D. NFPA 701 Standard Methods of Fire Tests for Flame Propagation of Textiles and Films; 2023, with Errata.
- E. UL (GGG) GREENGUARD Gold Certified Products; Current Edition.
- F. UL 325 Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.
- G. WCMA A100.1 Standard for Safety of Window Covering Products; 2022.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Where motorized shades are to be controlled by control systems provided under other sections, coordinate the work with other trades to provide compatible products.
 - 2. Coordinate the work with other trades to provide rough-in of electrical wiring as required for installation of hardwired motorized shades.
- B. Preinstallation Meeting: Convene one week prior to commencing work related to products of this section; require attendance of affected installers.
- C. Sequencing:
 - 1. Do not fabricate shades until field dimensions for each opening have been taken with field conditions in place.
 - 2. Do not install shades until final surface finishes and painting are complete.

1.5 SUBMITTALS

A. Refer to Section 01 33 00 - Submittal Procedures for submittal procedures.

- B. Product Data: Provide manufacturer's standard catalog pages and data sheets, including materials, finishes, fabrication details, dimensions, profiles, mounting requirements, and accessories.
 - 1. Motorized Shades: Include power requirements and standard wiring diagrams for specified products.
- C. Shop Drawings: Include shade schedule indicating size, location and keys to details, head, jamb, and sill details, mounting dimension requirements for each product and condition, and operation direction.
 - 1. Motorized Shades: Provide schematic system riser diagram indicating component interconnections. Include requirements for interface with other systems.
- D. Certificates: Manufacturer's documentation that line voltage components are UL listed or UL recognized.
- E. Source Quality Control Submittals: Provide test reports indicating compliance with specified fabric properties.
- F. Selection Samples: Include fabric samples in full range of available colors and patterns.1. Motorized Shades: Include finish selections for controls.
- G. Verification Samples: Minimum size 6 inches (150 mm) square, representing actual materials, color and pattern.
- H. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- I. Project Record Documents: Record actual locations of control systems and show interconnecting wiring.
- J. Operation and Maintenance Data: List of all components with part numbers, sources of supply, and operation and maintenance instructions; include copy of shop drawings.
- K. Warranty: Submit sample of manufacturer's warranty and documentation of final executed warranty completed in Owner's name and registered with manufacturer.
- L. Maintenance contracts.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of this type with minimum 5 years of documented experience with shading systems of similar size and type.
 - 1. Manufacturer's authorized representative.
 - 2. Factory training and demonstrated experience.
- C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver shades in manufacturer's unopened packaging, labeled to identify each shade for each opening.
- B. Handle and store shades in accordance with manufacturer's recommendations.

1.8 FIELD CONDITIONS

A. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

A. Refer to Section 01 77 00 - Closeout Procedures for additional warranty requirements.

- B. Provide manufacturer's warranty from Date of Substantial Completion, covering the following:
 - 1. Shade Hardware: One year.
 - 2. Electric Motors: One year.
 - 3. Fabric: One year.
 - 4. Aluminum and Steel Coatings: One year.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
 - 1. Interior Manually Operated Roller Shades:
- B. Substitutions: Refer to Section 01 25 13 Product Substitution Procedures.
 - 1. Manufacturers and fabricators not listed must have a minimum of 5 years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered. Submit as a substitution.
- C. Source Limitations: Furnish products produced by a single manufacturer and obtained from a single supplier.

2.2 ROLLER SHADES

- A. General:
 - 1. Provide shade system components that are easy to remove or adjust without removal of mounted shade brackets.
 - 2. Provide shade system that operates smoothly when shades are raised or lowered.
- В. -----
- C. Interior Shades:
 - 1. General Requirements:
 - a. Roll Direction: Roll down, closed position is at window sill, unless noted otherwise.
 - b. Mounting: As indictated on Drawings.
 - c. Roller Tubes:
 - 1) Material: Extruded aluminum.
 - 2) Size: As recommended by manufacturer; selected for suitability for installation conditions, span, and weight of shades.
 - 3) Fabric Attachment: Utilize extruded channel in tube to accept vinyl spline welded to fabric edge. Shade band to be removable and replaceable without removing roller tube from brackets or inserting spline from the side of the roller tube.
 - 4) Roller tubes to be capable of being removed and reinstalled without affecting roller shade limit adjustments.
 - d. Drop Position: Regular roll.
 - e. Double-Roller Drop Position:
 - 1) Light-Filtering Fabric: Room-side of opening.
 - 2) Room-Darkening Fabric: Glass-side of opening.
 - 2. Manually-Operated Shades:
 - a. Basis of Design:
 - 1) Crank-Operated FlexShade manufactured by Draper, Inc.
 - b. Description: Manually operated fabric window shades for light-filtering, roomdarkening, or both light-filtering and room-darkening as indicated on Drawings.

2.3 SHADE FABRIC

- A. Fabric: Nonflammable, color-fast, impervious to heat and moisture, and able to retain its shape under normal operation.
 - 1. Manufacturers:

- a. Draper; Shear Weave SW2400.
- b. Substitutions: See Section 01 60 00 Product Requirements.
- 2. Material: Vinyl coated polyester.
- 3. Material Certificates and Product Disclosures:
 - a. Low-Emitting Material Certification: Greenguard Gold certified and listed in UL (GGG).
 - b. Cradle to Cradle Material Health Certificate: Achievement level of Bronze.
 - c. Health Product Declaration (HPD): Complete, published declaration with full disclosure of known hazards.
 - d. Declare label.
- 4. Performance Requirements:
 - a. Flammability: Pass NFPA 701 large and small tests.
 - b. Fungal Resistance: No growth when tested according to ASTM G21.
 - c. Solar Reflectance (Rs):
- 5. Openness Factor: 3%.
- 6. Roll Width: 72 inches (1829 mm).
- 7. Color: As selected by Architect from manufacturer's full range of colors.
- 8. Fabrication:
 - a. Fabric Orientation: Railroaded, fabric is turned 90 degrees off the roll.
 - b. If height of opening requires multiple panels of railroaded fabric, use battens at seams.
 - c. Battens: Full width of shade, enclose in welded shade fabric pocket.

2.4 ROLLER SHADE FABRICATION

- A. Field measure finished openings prior to ordering or fabrication.
- B. Dimensional Tolerances: Fabricate shades to fit openings within specified tolerances.
 - 1. Vertical Dimensions: Fill openings from head to sill with 1/2 inch (13 mm) space between bottom bar and window stool.
 - 2. Horizontal Dimensions Inside Mounting: Fill openings from jamb to jamb.
 - 3. Horizontal Dimensions Inside Mounting: Provide symmetrical light gaps on both sides of shade not to exceed 3/4 inch (19.05 mm) total.
 - 4. Horizontal Dimensions Outside Mounting: Cover window frames, trim, and casings completely.
 - 5. Horizontal Dimensions Outside Mounting: Extend shades 2 inches (50 mm) beyond jambs on each side.
- C. At openings requiring continuous multiple shade units with separate rollers, locate roller joints at window mullion centers; butt rollers end-to-end.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine finished openings for deficiencies that may preclude satisfactory installation.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Start of installation shall be considered acceptance of substrates.

3.2 PREPARATION

- A. Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under the project conditions.
- B. Coordinate with window installation and placement of concealed blocking to support shades.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions and approved shop drawings, using mounting devices as indicated.
- B. Replace shades that exceed specified dimensional tolerances at no extra cost to Owner.
- C. Adjust level, projection, and shade centering from mounting bracket. Verify there is no telescoping of shade fabric. Ensure smooth shade operation.

3.4 SYSTEM STARTUP

A. Motorized Shade System: Provide services of a manufacturer's authorized representative to perform system startup.

3.5 CLEANING

- A. Clean soiled shades and exposed components as recommended by manufacturer.
- B. Replace shades that cannot be cleaned to "like new" condition.
- C. See Section 01 74 19 Construction Waste Management and Disposal for additional requirements.

3.6 CLOSEOUT ACTIVITIES

- A. See Section 01 78 00 Closeout Submittals, for closeout submittals.
- B. See Section 01 79 00 Demonstration and Training, for additional requirements.
- C. Demonstration: Demonstrate operation and maintenance of window shade system to Owner's personnel.
- D. Training: Train Owner's personnel on operation and maintenance of system.
 - 1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
 - 2. Provide minimum of two hours training by manufacturer's authorized personnel at location designated by the Owner.

3.7 PROTECTION

- A. Protect installed products from subsequent construction operations.
- B. Touch-up, repair, or replace damaged products before Substantial Completion.

3.8 MAINTENANCE

- A. See Section 01 70 00 Execution and Closeout Requirements, for additional requirements relating to maintenance service.
- B. Provide to Owner, a proposal as an alternate to the base bid, a separate renewable maintenance contract for the service and maintenance of a motorized shade system for one year from date of Substantial Completion. Include a complete description of preventive maintenance, systematic examination, adjustment, parts and labor, cleaning, and testing, with a detailed schedule.

END OF SECTION 12 24 00

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SECTION 12 36 00 - COUNTERTOPS

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. Countertops for architectural cabinet work.
 - 2. Countertops for manufactured casework.
 - 3. Countertop supports.
- B. Related Sections:
 - 1. Section 11 53 13 Laboratory Fume Hoods: Work surfaces inside fume hoods.
 - 2. Section 12 35 53.19 Wood Laboratory Casework: Laboratory countertops.
 - 3. Section 22 40 00 Plumbing Fixtures: Sinks.

1.3 REFERENCE STANDARDS

- A. ANSI A208.1 American National Standard for Particleboard; 2022.
- B. ANSI A208.2 Medium Density Fiberboard (MDF) for Interior Applications; 2022.
- C. ASTM A666 Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2023.
- D. ASTM B211/B211M Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire; 2019.
- E. ASTM D635 Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position; 2022.
- F. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials; 2023d.
- G. AWI (QCP) Quality Certification Program; Current Edition.
- H. AWI/AWMAC/WI (AWS) Architectural Woodwork Standards, 2nd Edition; 2014, with Errata (2016).
- I. AWMAC (GIS) Guarantee and Inspection Services Program; Current Edition.
- J. AWMAC/WI (NAAWS) North American Architectural Woodwork Standards; 2021, with Errata.
- K. IAPMO Z124 Plastic Plumbing Fixtures; 2022.
- L. ISFA 2-01 Classification and Standards for Solid Surfacing Material; 2013.
- M. ISFA 3-01 Classification and Standards for Quartz Surfacing Material; 2013.
- N. NEMA LD 3 High-Pressure Decorative Laminates; 2005.
- O. NFPA 286 Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth; 2024.
- P. NSF 51 Food Equipment Materials; 2023.
- Q. NSI (DSDM) Dimensional Stone Design Manual, Version VIII; 2016.
- R. PS 1 Structural Plywood; 2023.
- S. SEFA 2 Installations; 2010.
- T. SEFA 3 Laboratory Work Surfaces; 2020.
- U. WI (CCP) Certified Compliance Program (CCP); Current Edition.

- V. WI (CSIP) Certified Seismic Installation Program (CSIP); Current Edition.
- W. WI (MCP) Monitored Compliance Program (MCP); Current Edition.

1.4 PERFORMANCE REQUIREMENTS

- A. Countertops and Vanities: Provide countertop and vanity framing capable of withstanding the following structural loads without exceeding the allowable design working stress of the materials involved, including anchors and connections, or of exhibiting excessive deflections in any of the components making up the countertops and vanities:
 - 1. All deadloads.
 - 2. 500 pound live load placed on the countertop and vanity.
 - 3. Deflection at Midspan: L/1000 times span or 1/8 inch (3 mm) whichever is less.
- B. WI Premium Grade: Where indicated on Drawings.

1.5 SUBMITTALS

- A. Refer to Section 01 33 00 Submittal Procedures for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Specimen warranty.
- C. Shop Drawings: Complete details of materials and installation; combine with shop drawings of cabinets and casework specified in other sections.
- D. Selection Samples: For each finish product specified, color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finish product specified, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
- F. Test Reports: Chemical resistance testing, showing compliance with specified requirements.
- G. Certificate: Submit labels and certificates required by quality assurance and quality control programs.
- H. Installer's qualification statement.
- I. Installation Instructions: Manufacturer's installation instructions and recommendations.
- J. Maintenance Data: Manufacturer's instructions and recommendations for maintenance and repair of countertop surfaces.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of documented experience.
- B. Quality Certification:
 - 1. Provide designated labels on shop drawings as required by certification program.
 - 2. Provide designated labels on installed products as required by certification program.
 - 3. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.8 FIELD CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

- A. Warranty the work specified herein for 5 years against becoming unserviceable or causing an objectionable appearance resulting from either defective or nonconforming materials and workmanship.
- B. Defects shall include but not be limited to the following:
 - 1. Rough or difficult operation, or loose or missing parts.
 - 2. Delamination of surfaces.
 - 3. Noticeable deterioration of finish.
 - 4. Warped or misaligned surfaces or telegraphing of subsurface imperfections.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with specification requirements, products by the listed manufacturers or fabricators may be submitted for use in the Work.
 - 1. Manufacturers listed for products in this Section.
- B. Substitutions: Refer to Section 01 25 13 Product Substitution Procedures.
 - 1. Manufacturers and fabricators not listed must have a minimum of 5 years' experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered. Submit as a substitution.

2.2 COUNTERTOPS

- A. General:
 - 1. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
 - 2. Quality Standard: SEFA 3 for laboratory worksurfaces.
- B. Compact Laminate Type Countertops: Self-supporting high-pressure decorative laminate (HPDL) panel with decorative surface over structural members.
 - 1. Panels: Phenolic resin impregnated Kraft paper core with melamine impregnated decorative surface papers; NEMA LD 3 Grade CGS.
 - a. Basis of Design Product:
 - 1) Standard Grade Solid Phenolic Compact manufactured by Durcon.
 - b. Panel Thickness:1 inch (25 mm).
 - c. Surface Burning Characteristics: Flame spread index of 25, maximum; smoke developed index of 450, maximum; when tested in accordance with ASTM E84.
 - d. NSF approved for food contact.
 - e. Wear Resistance: In addition to specified grade, comply with NEMA LD 3 High Wear Grade requirements for wear resistance.
 - f. Core Color: Black.
 - g. Finish: Matte or suede, gloss rating of 5 to 20.
 - h. Surface Color and Pattern: As selected by the Architect from manufacturer's full line.
 - 2. Exposed Edge Treatment: Square natural cut sanded and polished to semi-gloss sheen.
 - 3. Back and End Splashes: Same material, same construction; minimum 4 inches (102 mm) high.
 - 4. Fabricate in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 11 Countertops, Custom Grade.
 - 5. Fabricate in accordance with manufacturer's standard requirements.

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- C. Solid Surfacing Wall Panels: Solid surfacing sheet or plastic resin casting over continuous substrate.
 - 1. Flat Sheet Thickness: 1/4 inch (6 mm), minimum.
 - Solid Surfacing Sheet and Plastic Resin Castings: Complying with ISFA 2-01 and NEMA LD 3; acrylic resin, mineral filler, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
 - a. Basis of Design Products:
 - 1) Products manufactrued by American Bath Group.
 - 2) Products manufactured by Meganite, Inc.
 - 3. Surface Burning Characteristics: Flame spread index of 25, maximum; smoke developed index of 450, maximum; when tested in accordance with ASTM E84.
 - 4. Finish on Exposed Surfaces: Matte, gloss rating of 5 to 20.
 - 5. Color and Pattern: As selected by Architect from manufacturer's full line.
 - 6. Fabricate in accordance with manufacturer's standard requirements.

2.3 ACCESSORIES

- A. Countertop and Vanity Supports:
 - 1. Pre-Fabricated Countertop Support:
 - a. Basis of Design Product:
 - 1) Front Mounting Plus manufactured by Centerline Brackets.
 - b. Material:
 - 1) 3/8 by 2-1/2 inches (19 by 64 mm) steel.
 - c. Bracket Depth and Height: As recommended by manufacturer.
 - d. Finish: Powder Coat.
 - 1) Color: Black.

2.4 MATERIALS

- A. Wood-Based Components:
 - 1. Wood fabricated from old growth timber is not permitted.
 - 2. Provide sustainably harvested wood, certified or labeled; refer to Section 01 60 00 Product Requirements.
 - 3. Provide wood harvested within a 500 mile (805 km) radius of the project site.
 - 4. Wood fabricated from timber recovered from riverbeds or otherwise abandoned is permitted, unless otherwise noted, provided it is clean and free of contamination; identify source; provide lumber re-graded by an inspection service accredited by the American Lumber Standard Committee, Inc.
- B. Plywood for Supporting Substrate: PS 1 Exterior Grade, A-C veneer grade, minimum 5-ply; minimum 3/4 inch (19 mm) thick; join lengths using metal splines.
- C. Particleboard for Supporting Substrate: ANSI A208.1 Grade 2-M-2, 45 pcf (20 kg/cu m) minimum density; minimum 3/4 inch (19 mm) thick; join lengths using metal splines.
- D. Medium Density Fiberboard for Supporting Substrate: ANSI A208.2.
- E. Adhesives: Chemical resistant waterproof adhesive as recommended by manufacturer of materials being joined.
- F. Cove Molding for Top of Splashes: Rubber with semi-gloss finish and T-spline to fit between splash and wall; 1/2 inch (12 mm) by 1/2 inch (12 mm).
 - 1. Color: As indicated on drawings.
 - 2. Color: As selected by the Architect from manufacturer's full line.
- G. Joint Sealant: Mildew-resistant silicone sealant, white.

- H. Polyester Protective Film: Scratch-, heat-, and acid-resistant optically clear removable polyester film for bonding to stone counters.
 - 1. Thickness: 4 mil, 0.004 inch (0.1 mm), minimum.
 - 2. Finish: Gloss.
 - 3. Construction: Multi-ply laminate.
 - 4. Adhesive Type: Pressure sensitive acrylic.
 - 5. Surface Burning Characteristics: Flame spread index of 25, maximum, and smoke developed index of 450, maximum, when tested in accordance with ASTM E84 (Class A).
 - 6. NSF approved for food contact per NSF 51.
 - 7. Basis of Design Products:
 - a. Products manufactured by Stoneguard USA: www.stoneguardusa.com/#sle.
 - b. Products manufactrued by Surface Shields, Inc.
 - c. TuffSkin manufactured by TuffSkin Surface Protection LLC.
- I. Sealer: Stain and acid protection for natural stone counters.
 - 1. NSF approved for food contact per NSF 51.
 - 2. Products:
 - a. Products manufactrued by Custom Building Products.
 - b. Natural Finish Stone Sealer manufactured by Rockstar Sealing.
 - c. Products manufactured by STONETECH.

2.5 FABRICATION

- A. Fabricate tops and splashes in the largest sections practicable, with top surface of joints flush.
 - 1. Join lengths of tops using best method recommended by manufacturer.
 - 2. Fabricate to overhang fronts and ends of cabinets 1 inch (25 mm) except where top butts against cabinet or wall.
 - a. Rout a 1/8 inch (3 mm) drip groove at underside of exposed overlapping edges, set back 1/2 inch (13 mm) from face of edge.
 - 3. Prepare all cutouts accurately to size; replace tops having improperly dimensioned or unnecessary cutouts or fixture holes.
- B. Provide back/end splash where indicated on Drawings.
 - 1. Secure to countertop with concealed fasteners and with contact surfaces set in waterproof glue.
 - 2. Height: 4 inches (102 mm), unless otherwise indicated.
- C. Solid Surfacing: Fabricate tops and wall panels up to 144 inches (3,657 mm) long in one piece; join pieces with adhesive sealant in accordance with manufacturer's recommendations and instructions.
 - 1. Integral sinks: Shop-mount securely to countertop with adhesives, using flush configuration, as per manufacturer's instructions, and as detailed on drawings.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Verify that wall surfaces have been finished and mechanical and electrical services and outlets are installed in proper locations.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install vanities in accordance with manufacturer's instructions and approved shop drawings
- B. Securely attach countertops to cabinets using concealed fasteners. Make flat surfaces level; shim where required.
- C. Attach plastic laminate countertops using screws with minimum penetration into substrate board of 5/8 inch (16 mm).
- D. Seal joint between back/end splashes and vertical surfaces.
 - 1. Where indicated use rubber cove molding.
 - 2. Where applied cove molding is not indicated use specified sealant.

3.4 TOLERANCES

- A. Variation From Horizontal: 1/8 inch in 10 feet (3 mm in 3 m), maximum.
- B. Offset From Wall, Countertops: 1/8 inch (3 mm) maximum; 1/16 inch (1.5 mm) minimum.
- C. Field Joints: 1/8 inch (3 mm) wide, maximum.

3.5 CLEANING

A. Clean countertops surfaces thoroughly.

3.6 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

END OF SECTION 12 36 00