STATE OF DELAWARE
OMB / DIVISION OF FACILITIES MANAGEMENT
CONTRACT # MJ1002000085

SPECIFICATIONS
FOR

RICHARDSON & ROBBINS BUILDING
R&R RESTROOM RENOVATION

AT

RICHARDSON & ROBBINS BUILDING
89 KINGS HWY., SW
DOVER, DELAWARE 19901

BECKER MORGAN GROUP, INC.
Project No. 2024336.00

ISSUED FOR:

BIDDING PURPOSES ONLY

SPETEMBER 2026

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SECTION 00 01 07
PROFESSIONAL SEALS PAGE

1.01 DESIGN PROFESSIONALS OF RECORD:

A. Architect:

SEAL

1. BECKER MORGAN GROUP, INC.
2. Brenden D. Frederick; License No. 8204 DE
3. Expiration Date: 01/31/2027
4. Responsible for Divisions 00 - 34 Sections except where indicated as prepared by other design professionals of record.

B. Plumbing, HVAC, Electrical Engineer:

SEAL

1. DEDC, LLC
2. Matthew J. Lano; License No. 124393 DE
3. Expiration Date: 06/30/2028
4. Responsible for Divisions 22 - 26 Sections.

END OF SECTION

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END OF SECTION

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SECTION 00 11 16
INVITATION TO BID

Sealed bids for **OMB / DFM Contract No. MJ1002000085 for Richardson & Robbins Building -R&R Restroom Renovation**, will be received by the State of Delaware, Office of Management and Budget, Division of Facilities Management, by way of the Bonfire Portal at https://DFM.bonfirehub.com until **1:00pm local time on, December 03, 2026**. Bids may also be delivered in person to 122 Martin Luther King Jr BLVD S Dover DE 19901 no later than the date and time indicated above. Bidder bears the risk of late delivery.

Bids will be opened and read aloud at 2:00pm local time on December 03, 2026 at the Haslet Armory, 122 Martin Luther King Jr. Blvd. South, Dover, DE 19901

The project involves renovations to (8) existing gendered restrooms at the Richardson & Robbins Building to update fixtures and finishes, and to rearrange restroom layouts for ADA compliance. (2) grouped restrooms on the first floor will be completely removed and replaced with (6) single-user restrooms. The (6) remaining gendered restrooms will be completely renovated. All restrooms will receive new floor, wall, and ceiling finishes; new plumbing fixtures and piping, electrical devices, lighting fixtures, and HVAC accessories; toilet partitions, and casework.

A **MANDATORY** Pre-Bid Meeting will be held on, **November 10, 2026 at 10:30am local time at the Haslet Armory Conference Room**, for the purpose of establishing the list of subcontractors and to answer questions. Upon arrival, attendees are to check in at front desk for directions to pre-bid meeting room. Representatives of each party to any Joint Venture must attend this meeting. **ATTENDANCE OF THIS MEETING IS A PREREQUISITE FOR BIDDING ON THIS CONTRACT.**

Contract documents may be obtained at the office of BECKER MORGAN GROUP, INC., 309 S. Governors Avenue, Dover, DE 19904, 302 734-7950 upon receipt of $25.00 per set / non-refundable. Checks are to be made payable to “BECKER MORGAN GROUP, INC.”.

Bidders will not be subject to discrimination on the basis of race, creed, color, sex, sexual orientation, gender identity or national origin in consideration of this award, and Minority Business Enterprises, Disadvantaged Business Enterprises, Women-Owned Business Enterprises and Veteran-Owned Business Enterprises will be afforded full opportunity to submit bids on this contract. Each bid must be accompanied by a bid security equivalent to ten percent of the bid amount and all additive alternates. The successful bidder must post a performance bond and payment bond in a sum equal to 100 percent of the contract price upon execution of the contract. The Owner reserves the right to reject any or all bids and to waive any informalities therein. The Owner may extend the time and place for the opening of the bids from that described in the advertisement, with not less than two calendar days’ notice by certified delivery, facsimile machine or other electronic means to those bidders’ receiving plans.

END OF SECTION

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SECTION 00 21 13
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3. BIDDING DOCUMENTS

4. BIDDING PROCEDURES

5. CONSIDERATION OF BIDS

6. POST-BID INFORMATION

7. PERFORMANCE BOND AND PAYMENT BOND

8. FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

ARTICLE 1: GENERAL

1.1 DEFINITIONS

1.1.1 Whenever the following terms are used, their intent and meaning shall be interpreted as follows:

1.2 STATE: The State of Delaware.

1.3 AGENCY: Contracting State Agency as noted on cover sheet.

1.4 DESIGNATED OFFICIAL: The agent authorized to act for the Agency.

1.5 BIDDING DOCUMENTS: Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement for Bid, Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders (if any), General Conditions, Supplementary General Conditions, General Requirements, Special Provisions (if any), the Bid Form (including the Non-collusion Statement), and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, as well as the Drawings, Specifications (Project Manual) and all Addenda issued prior to execution of the Contract.

1.6 CONTRACT DOCUMENTS: The Contract Documents consist of the, Instructions to Bidders, Supplementary Instructions to Bidders (if any), General Conditions, Supplementary General Conditions, General Requirements, Special Provisions (if any), the form of agreement between the Owner and the Contractor, Drawings (if any), Specifications (Project Manual), and all addenda.

1.7 AGREEMENT: The form of the Agreement shall be AIA Document A101, Standard Form of Agreement between Owner and Contractor where the basis of payment is a STIPULATED SUM. In the case of conflict between the instructions contained therein and the General Requirements herein, these General Requirements shall prevail.

1.8 GENERAL REQUIREMENTS (or CONDITIONS): General Requirements (or conditions) are instructions pertaining to the Bidding Documents and to contracts in general. They contain, in summary, requirements of laws of the State; policies of the Agency and instructions to bidders.

1.9 SPECIAL PROVISIONS: Special Provisions are specific conditions or requirements peculiar to the bidding documents and to the contract under consideration and are supplemental to the General Requirements. Should the Special Provisions conflict with the General Requirements, the Special Provisions shall prevail.

1.10 ADDENDA: Written or graphic instruments issued by the Owner/Architect prior to the execution of the contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.

1.11 BIDDER OR VENDOR: A person or entity who formally submits a Bid for the material or Work contemplated, acting directly or through a duly authorized representative who meets the requirements set forth in the Bidding Documents.

1.12 SUB-BIDDER: A person or entity who submits a Bid to a Bidder for materials or labor, or both for a portion of the Work.

1.13 BID: A complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

1.14 BASE BID: The sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids (if any are required to be stated in the bid).

1.15 ALTERNATE BID (or ALTERNATE): An amount stated in the Bid, where applicable, to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents is accepted.

1.16 UNIT PRICE: An amount stated in the Bid, where applicable, as a price per unit of measurement for materials, equipment or services or a portion of the Work as described in the Bidding Documents.

1.17 SURETY: The corporate body which is bound with and for the Contract, or which is liable, and which engages to be responsible for the Contractor's payments of all debts pertaining to and for his acceptable performance of the Work for which he has contracted.

1.18 BIDDER'S DEPOSIT: The security designated in the Bid to be furnished by the Bidder as a guaranty of good faith to enter into a contract with the Agency if the Work to be performed or the material or equipment to be furnished is awarded to him.

1.19 CONTRACT: The written agreement covering the furnishing and delivery of material or work to be performed.

1.20 CONTRACTOR: Any individual, firm or corporation with whom a contract is made by the Agency.

1.21 SUBCONTRACTOR: An individual, partnership or corporation which has a direct contract with a contractor to furnish labor and materials at the job site, or to perform construction labor and furnish material in connection with such labor at the job site.

1.22 CONTRACT BOND: The approved form of security furnished by the contractor and his surety as a guaranty of good faith on the part of the contractor to execute the work in accordance with the terms of the contract.

1.23 CUSTOM FABRICATION: As defined in 29 Del. C. § 6902, the term “custom fabrication” means the offsite fabrication, assembly, or other production of non-standard goods or materials, including components, fixtures or parts thereof, specifically for a public works project. Such goods and materials shall include those used in the following trades or systems: (1) Plumbing or pipe fitting systems, including heating, ventilating, air-conditioning, refrigeration systems, sheet metal or other duct systems; (2) Electrical systems; (3) Mechanical insulation work; (4) Ornamental iron work; and (5) Commercial

signage that does not attempt or appear to direct the movement of traffic on highways or roadways or interfere with, imitate, or resemble any official traffic sign, signal or device.

ARTICLE 2: BIDDER'S REPRESENTATION

2.1 PRE-BID MEETING

2.1.1 A pre-bid meeting for this project will be held at the time and place designated. Attendance at this meeting is a pre-requisite for submitting a Bid, unless this requirement is specifically waived elsewhere in the Bid Documents.

2.2 By submitting a Bid, the Bidder represents that:

2.2.1 The Bidder has read and understands the Bidding Documents and that the Bid is made in accordance therewith.

2.2.2 The Bidder has visited the site, become familiar with existing conditions under which the Work is to be performed, and has correlated the Bidder’s personal observations with the requirements of the proposed Contract Documents.

2.2.3 The Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception.

2.3 JOINT VENTURE REQUIREMENTS

2.3.1 For Public Works Contracts, each Joint Venturer shall be qualified and capable to complete the Work with their own forces.

2.3.2 Included with the Bid submission, and as a requirement to bid, a copy of the executed Joint Venture Agreement shall be submitted and signed by all Joint Venturers involved.

2.3.3 All required Bid Bonds, Performance Bonds, Material and Labor Payment Bonds must be executed by both Joint Venturers and be placed in both of their names.

2.3.4 All required insurance certificates shall name both Joint Venturers.

2.3.5 Both Joint Venturers shall sign the Bid Form.

2.3.6 Both Joint Venturers shall include their Federal E.I. Number with the Bid.

2.3.7 In the event of a mandatory Pre-bid Meeting, each Joint Venturer shall have a representative in attendance.

2.3.8 Due to exceptional circumstances and for good cause shown, one or more of these provisions may be waived at the discretion of the State.

2.4 ASSIGNMENT OF ANTITRUST CLAIMS

2.4.1 As consideration for the award and execution by the Owner of this contract, the Contractor hereby grants, conveys, sells, assigns and transfers to the State of Delaware all of its right, title and interests in and to all known or unknown causes of action it presently has or may now or hereafter acquire under the antitrust laws of the United States and the State of Delaware, relating to the particular goods or services purchased or acquired by the Owner pursuant to this contract.

ARTICLE 3: BIDDING DOCUMENTS

3.1 COPIES OF BID DOCUMENTS

3.1.1 Bidders may obtain complete sets of the Bidding Documents from the Architectural/Engineering firm designated in the Advertisement or Invitation to Bid in the number and for the deposit sum, if any, stated therein.

3.1.2 Bidders shall use complete sets of Bidding Documents for preparation of Bids. The issuing Agency nor the Architect assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

3.1.3 Any errors, inconsistencies or omissions discovered shall be reported to the Architect immediately.

3.1.4 The Agency and Architect may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall report any errors, inconsistencies, or ambiguities discovered to the Architect.

3.2.2 Said books and records shall be maintained by the Contractor for a period of seven (7) years from the date of final payment under the Prime Contract and by the Subcontractor for a period of seven (7) years from the date of final payment under the Subcontract. Bidders or Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Architect at least seven days prior to the date for receipt of Bids. Interpretations, corrections and changes to the Bidding Documents will be made by written Addendum. Interpretations, corrections, or changes to the Bidding Documents made in any other manner shall not be binding.

3.2.3 The apparent silence of the specifications as to any detail, or the apparent omission from it of detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and only material and workmanship of the first quality are to be used. Proof of specification compliance will be the responsibility of the Bidder.

3.2.4 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all permits, labor, materials, equipment, tools, construction equipment and

machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the Work.

3.2.5 The Owner will bear the costs for all impact and user fees associated with the project.

3.3 SUBSTITUTIONS

3.3.1 The materials, products and equipment described in the Bidding Documents establish a standard of quality, required function, dimension, and appearance to be met by any proposed substitution. The specification of a particular manufacturer or model number is not intended to be proprietary in any way. Substitutions of products for those named will be considered, providing that the Vendor certifies that the function, quality, and performance characteristics of the material offered is equal or superior to that specified. It shall be the Bidder's responsibility to assure that the proposed substitution will not affect the intent of the design, and to make any installation modifications required to accommodate the substitution.

3.3.2 Requests for substitutions shall be made in writing to the Architect at least ten days prior to the date of the Bid Opening. Such requests shall include a complete description of the proposed substitution, drawings, performance and test data, explanation of required installation modifications due the substitution, and any other information necessary for an evaluation. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect’s decision of approval or disapproval shall be final. The Architect is to notify Owner prior to any approvals.

3.3.3 If the Architect approves a substitution prior to the receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding.

3.3.4 The Architect shall have no obligation to consider any substitutions after the Contract award.

3.4 ADDENDA

3.4.1 Addenda will be mailed or delivered to all who are known by the Architect to have received a complete set of the Bidding Documents.

3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

3.4.3 No Addenda will be issued later than 2 calendar days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which extends the time or changes the location for the opening of bids.

3.4.4 Each bidder shall ascertain prior to submitting his Bid that they have received all Addenda issued, and shall acknowledge their receipt in their Bid in the appropriate space. Not acknowledging an issued Addenda could be grounds for determining a bid to be non-responsive.

ARTICLE 4: BIDDING PROCEDURES

4.1 PREPARATION OF BIDS

4.1.1 Submit the bids on the Bid Forms included with the Bidding Documents.

4.1.2 Submit the original Bid Form for each bid. Bid Forms may be removed from the project manual for this purpose.

4.1.3 Execute all blanks on the Bid Form in a non-erasable medium (typewriter or manually in ink).

4.1.4 Where so indicated by the makeup on the Bid Form, express sums in both words and figures, in case of discrepancy between the two, the written amount shall govern.

4.1.5 Interlineations, alterations or erasures must be initialed by the signer of the Bid.

4.1.6 BID ALL REQUESTED ALTERNATES AND UNIT PRICES, IF ANY. If there is no change in the Base Bid for an Alternate, enter “No Change”. The Contractor is responsible for verifying that they have received all addenda issued during the bidding period. Work required by Addenda shall automatically become part of the Contract.

4.1.7 Make no additional stipulations on the Bid Form and do not qualify the Bid in any other manner.

4.1.8 Each copy of the Bid shall include the legal name of the Bidder and a statement whether the Bidder is a sole proprietor, a partnership, a corporation, or any legal entity, and each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current Power of Attorney attached, certifying agent's authority to bind the Bidder.

4.1.9 Bidder shall complete the Non-Collusion Statement form included with the Bid Forms and include it with their Bid.

4.1.10 In the construction of all Public Works projects for the State of Delaware or any agency thereof, preference in employment of laborers, workers or mechanics shall be given to bona fide legal citizens of the State who have established citizenship by residence of at least 90 days in the State.

4.1.11 Each bidder shall include a signed Affidavit for the Bidder certifying compliance with OMB Regulation 4104 - “Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on “Large Public Works Projects.” “Large Public Works” is based upon the current threshold required for bidding Public Works as set by the Purchasing and Contracting Advisory Council.

4.2 BID SECURITY

4.2.1 All bids shall be accompanied by a deposit of either a good and sufficient bond to the agency for the benefit of the agency, with corporate surety authorized to do business in this State, the form of the bond and the surety to be approved by the agency, or a security of the bidder assigned to the agency, for a sum equal to at least 10% of the bid plus all

add alternates, or in lieu of the bid bond a security deposit in the form of a certified check, bank treasurer's check, cashier's check, money order, or other prior approved secured deposit assigned to the State. The bid bond need not be for a specific sum, but may be stated to be for a sum equal to 10% of the bid plus all add alternates to which it relates and not to exceed a certain stated sum, if said sum is equal to at least 10% of the bid. The Bid Bond form used shall be the standard OMB form (attached).

4.2.2 The Agency has the right to retain the bid security of Bidders to whom an award is being considered until either a formal contract has been executed and bonds have been furnished or the specified time has elapsed so the Bids may be withdrawn or all Bids have been rejected.

4.2.3 In the event of any successful Bidder refusing or neglecting to execute a formal contract and bond within 20 days of the awarding of the contract, the bid bond or security deposited by the successful bidder shall be forfeited.

4.3 SUBCONTRACTOR LIST

4.3.1 In accordance with Title 29, Chapter 69, Section 6962(d)(10)b of the Delaware Code, each Bidder shall submit with their Bid a completed List of Sub-Contractors included with the Bid Form. NAME ONLY ONE SUBCONTRACTOR FOR EACH TRADE. The bidder must list in each category the full name and address (City & State) of the sub-contractor that the Bidder will be using to perform the work and provide material for that subcontractor category. Should the Bidder's listed subcontractor intend to provide any of their subcontractor category of work through a third-tier contractor, the Bidder shall list that third-tier contractor's full name and address (City & State). If the Bidder intends to perform any category of work itself, it must list its full name and address. For clarification, if the Bidder intends to perform the work themselves, the Bidder may not insert "not applicable", "N/A", "self" or anything other than its own full name and address (City & State). To do so shall cause the bid to be rejected. In addition, the failure to produce a completed subcontractor list with the bid submittal shall cause the bid to be rejected. If you have more than three (3) third-tier contractors to report in any subcontractor category, print out additional page(s) containing the appropriate category, complete the rest of your list of third-tier contractors for that category, notate the addition in parentheses as (CONTINUATION) next to the subcontractor category and an asterisk (*) next to any additional third-tier contractors, and submit it with your bid.

4.3.2 It is the responsibility of the Contractor to ensure that their Subcontractors are in compliance with the provisions of this law. Also, if a Contractor elects to list themselves as a Subcontractor for any category, they must specifically name themselves on the Bid Form and be able to document their capability to act as Subcontractor in that category in accordance with this law.

4.4 AFFIDAVIT OF CONTRACTOR QUALIFICATIONS

4.4.1 In accordance with Title 29, Chapter 69, Section 6962(d)(10)b.3 of the Delaware Code, each Bidder shall submit with their Bid the Affidavit of Contractor Qualifications certifying that the Bidder will abide by the contractor's qualifications outlined in the construction bid specifications for the duration of the contract term. After a contract has been awarded the successful bidder shall not substitute another subcontractor whose name was submitted

on the Subcontractor Form except for the reasons in the statute and not without written consent from the awarding agency. Failure to utilize the subcontractors on the list will subject the successful bidder to penalties as outlined in the General Requirements Section 5.2 of the contract.

4.5 AFFIDAVIT OF CRAFT TRAINING COMPLIANCE

4.5.1 In accordance with Title 29, Chapter 69, Section 6962(c)(13) of the Delaware Code, contractors and subcontractors must provide craft training for journeyman and apprentice levels if **all** of the following apply:

A. A project meets the prevailing wage requirement under Title 29, Chapter 69, Section 6960 of the Delaware Code.

B. The contractor employs 10 or more total employees.

C. The project is not a federal highway project

Failure to provide required craft training on the project may subject the successful contractor and/or subcontractor(s) to penalties as outlined in Title 29, Chapter 69, Section 6962(c)(13) of the Delaware Code.

Bidders shall submit the Affidavit of Craft Training Compliance prior to contract execution.

4.6 EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS

4.6.1 During the performance of this contract, the contractor agrees as follows:

A. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color, sexual orientation, gender identity or national origin. The Contractor will take affirmative action to ensure the applicants are employed, and that employees are treated during employment, without regard to their race, creed, sex, color, sexual orientation, gender identity or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this nondiscrimination clause.

B. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, sex, color, sexual orientation, gender identity or national origin."

4.7 PREVAILING WAGE REQUIREMENT

4.7.1 Wage Provisions: For renovation and new construction projects whose costs exceed the thresholds contained in Delaware Code, Title 29, Section 6960, the minimum wage rates for various classes of laborers and mechanics shall be as determined by the Department of Labor, Division of Industrial Affairs of the State of Delaware.

4.7.2 The employer shall pay all mechanics and labors employed directly upon the site of work, or engaged in custom fabrication work, as that term is defined in Article 1.23 herein and as also as defined in 29 Del. C § 6902 and described in 29 Del. C. § 6960(b), regardless of where the work is performed, unconditionally and not less often than once a week and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the specifications, regardless of any contractual relationship which may be alleged to exist between the employer and such laborers and mechanics.

4.7.3 As per 29 Del. C. § 6960(b), the scale of the wages to be paid must be posted by the employer in a prominent and easily accessible place at the site of the work. There may be withheld from the employer so much of accrued payments as may be considered necessary by the Department of Labor to pay laborers and mechanics employed by the employer the difference between the rates of wages required by the contract to be paid laborers and mechanics on the work and rates of wages received by such laborers and mechanics to be remitted to the Department of Labor for distribution upon resolution of any claims.

4.7.4 Every contract based upon these specifications shall contain a stipulation that sworn payroll information, as required by the Department of Labor, be furnished weekly. The Department of Labor shall keep and maintain the sworn payroll information for a period of 6 months from the last day of the work week covered by the payroll.

4.8 SUBMISSION OF BIDS

4.8.1 Enclose the Bid, the Bid Security, and any other documents required to be submitted with the Bid in a sealed opaque envelope. Address the envelope to the party receiving the Bids. Identify with the project name, project number, and the Bidder's name and address. If the Bid is sent by mail, enclose the sealed envelope in a separate mailing envelope with the notation "BID ENCLOSED" on the face thereof. The State is not responsible for the opening of bids prior to bid opening date and time that are not properly marked.

4.8.2 Deposit Bids at the designated location prior to the time and date for receipt of bids indicated in the Advertisement for Bids. Bids received after the time and date for receipt of bids will be marked “LATE BID” and returned.

4.8.3 Bidder assumes full responsibility for timely delivery at location designated for receipt of bids.

4.8.4 Oral, telephonic or telegraphic bids are invalid and will not receive consideration.

4.8.5 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids, provided that they are then fully in compliance with these Instructions to Bidders.

4.9 MODIFICATION OR WITHDRAW OF BIDS

4.9.1 Prior to the closing date for receipt of Bids, a Bidder may withdraw a Bid by personal request and by showing proper identification to the Architect. A request for withdraw by letter or fax, if the Architect is notified in writing prior to receipt of fax, is acceptable. A fax directing a modification in the bid price will render the Bid informal, causing it to be ineligible for consideration of award. Telephone directives for modification of the bid price shall not be permitted and will have no bearing on the submitted proposal in any manner.

4.9.2 Bidders submitting Bids that are late shall be notified as soon as practicable and the bid shall be returned.

4.9.3 A Bid may not be modified, withdrawn or canceled by the Bidder during a thirty (30) day period following the time and date designated for the receipt and opening of Bids, and Bidder so agrees in submitting their Bid. Bids shall be binding for 30 days after the date of the Bid opening.

ARTICLE 5: CONSIDERATION OF BIDS

5.1 OPENING/REJECTION OF BIDS

5.1.1 Unless otherwise stated, Bids received on time will be publicly opened and will be read aloud. An abstract of the Bids will be made available to Bidders.

5.1.2 The Agency shall have the right to reject any and all Bids. A Bid not accompanied by a required Bid Security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

5.1.3 If the Bids are rejected, it will be done within thirty (30) calendar day of the Bid opening.

5.2 COMPARISON OF BIDS

5.2.1 After the Bids have been opened and read, the bid prices will be compared and the result of such comparisons will be made available to the public. Comparisons of the Bids may be based on the Base Bid plus desired Alternates. The Agency shall have the right to accept Alternates in any order or combination

5.2.2 The Agency reserves the right to waive technicalities, to reject any or all Bids, or any portion thereof, to advertise for new Bids, to proceed to do the Work otherwise, or to abandon the Work, if in the judgment of the Agency or its agent(s), it is in the best interest of the State.

5.2.3 An increase or decrease in the quantity for any item is not sufficient grounds for an increase or decrease in the Unit Price.

5.2.4 The prices quoted are to be those for which the material will be furnished F.O.B. Job Site and include all charges that may be imposed during the period of the Contract.

5.2.5 No qualifying letter or statements in or attached to the Bid, or separate discounts will be considered in determining the low Bid except as may be otherwise herein noted. Cash or separate discounts should be computed and incorporated into Unit Bid Price(s).

5.3 DISQUALIFICATION OF BIDDERS

5.3.1 An agency shall determine that each Bidder on any Public Works Contract is responsible before awarding the Contract. Factors to be considered in determining the responsibility of a Bidder include:

A. The Bidder's financial, physical, personnel or other resources including Subcontracts;

B. The Bidder's record of performance on past public or private construction projects, including, but not limited to, defaults and/or final adjudication or admission of violations of the Prevailing Wage Laws in Delaware or any other state;

C. The Bidder's written safety plan;

D. Whether the Bidder is qualified legally to contract with the State;

E. Whether the Bidder supplied all necessary information concerning its responsibility; and,

F. Any other specific criteria for a particular procurement, which an agency may establish; provided however, that, the criteria be set forth in the Invitation to Bid and is otherwise in conformity with State and/or Federal law.

5.3.2 If an agency determines that a Bidder is nonresponsive and/or nonresponsible, the determination shall be in writing and set forth the basis for the determination. A copy of the determination shall be sent to the affected Bidder within five (5) working days of said determination.

5.3.3 In addition, any one or more of the following causes may be considered as sufficient for the disqualification of a Bidder and the rejection of their Bid or Bids.

5.3.3.1 More than one Bid for the same Contract from an individual, firm or corporation under the same or different names.

5.3.3.2 Evidence of collusion among Bidders.

5.3.3.3 Unsatisfactory performance record as evidenced by past experience.

5.3.3.4 If the Unit Prices are obviously unbalanced either in excess or below reasonable cost analysis values.

5.3.3.5 If there are any unauthorized additions, interlineation, conditional or alternate bids or irregularities of any kind which may tend to make the Bid incomplete, indefinite or ambiguous as to its meaning.

5.3.3.6 If the Bid is not accompanied by the required Bid Security and other data required by the Bidding Documents.

5.3.3.7 If any exceptions or qualifications of the Bid are noted on the Bid Form.

5.4 ACCEPTANCE OF BID AND AWARD OF CONTRACT

5.4.1 A formal Contract shall be executed with the successful Bidder within twenty (20) calendar days after the award of the Contract.

5.4.2 Per Section 6962(d)(13)a., Title 29, Delaware Code, “The contracting agency shall award any public works contract within thirty (30) days of the bid opening to the lowest responsive and responsible Bidder, unless the Agency elects to award on the basis of best value, in which case the election to award on the basis of best value shall be stated in the Invitation To Bid. Any public school district and its board shall award public works contracts in accordance with this section’s requirements except it shall award the contract within 60 days of the bid opening.”

5.4.3 Each Bid on any Public Works Contract must be deemed responsive by the Agency to be considered for award. A responsive Bid shall conform in all material respects to the requirements and criteria set forth in the Contract Documents and specifications.

5.4.4 The Agency shall have the right to accept Alternates in any order or combination, and to determine the low Bidder on the basis of the sum of the Base Bid, plus accepted Alternates.

5.4.5 The successful Bidder shall execute a formal contract, submit the required Insurance Certificate, and furnish good and sufficient bonds, unless specifically waived in the General Requirements, in accordance with the General Requirement, within twenty (20) days of official notice of contract award. The successful Bidder shall provide, at least two business days prior to contract execution, copies of the Employee Drug Testing Program for the Bidder and all listed Subcontractors. Bonds shall be for the benefit of the Agency with surety in the amount of 100% of the total contract award. Said Bonds shall be conditioned upon the faithful performance of the contract. Bonds shall remain in affect for period of two (2) years after the date of the Certificate of Final Payment.

5.4.6 If the successful Bidder fails to execute the required Contract, Bond and all required information, as aforesaid, within twenty (20) calendar days after the date of official Notice of the Award of the Contract, their Bid guaranty shall immediately be taken and become the property of the State for the benefit of the Agency as liquidated damages, and not as a forfeiture or as a penalty. Award will then be made to the next lowest qualified Bidder of the Work or readvertised, as the Agency may decide.

5.4.7 Each bidder shall supply with its bid its taxpayer identification number (i.e., federal employer identification number or social security number) and should the vendor be awarded a contract, such vendor shall provide to the agency the taxpayer identification

license numbers of such subcontractors. Such numbers shall be provided on the later of the date on which such subcontractor is required to be identified or the time the contract is executed. The successful Bidder shall provide to the agency to which it is contracting, within 30 days of entering into such public works contract, copies of all Delaware Business licenses of subcontractors and/or independent contractors that will perform work for such public works contract. However, if a subcontractor or independent contractor is hired or contracted more than 20 days after the Bidder entered the public works contract the Delaware Business license of such subcontractor or independent contractor shall be provided to the agency within 10 days of being contracted or hired.

5.4.8 The Bid Security shall be returned to the successful Bidder upon the execution of the formal contract. The Bid Securities of unsuccessful bidders shall be returned within thirty (30) calendar days after the opening of the Bids.

ARTICLE 6: POST-BID INFORMATION

6.1 CONTRACTOR'S QUALIFICATION STATEMENT

6.1.1 Bidders to whom an award of a Contract is under consideration shall, if requested by the Agency, submit a properly executed AIA Document A305, Contractor's Qualification Statement, unless such a statement has been previously required and submitted.

6.2 Bidders to whom an award of a Contract has been made must produce their Delaware Business License before the Contract can be executed.

ARTICLE 7: PERFORMANCE BOND AND PAYMENT BOND

7.1 BOND REQUIREMENTS

7.1.1 The cost of furnishing the required Bonds, that are stipulated in the Bidding Documents, shall be included in the Bid.

7.1.2 If the Bidder is required by the Agency to secure a bond from other than the Bidder's usual sources, changes in cost will be adjusted as provide in the Contract Documents.

7.1.3 The Performance and Payment Bond forms used shall be the standard OMB forms (attached).

7.2 TIME OF DELIVERY AND FORM OF BONDS

7.2.1 The bonds shall be dated on or after the date of the Contract.

7.2.2 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix a certified and current copy of the power of attorney.

7.2.3 The Performance Bond and/or the Payment Bond may be electronic bonds and need not be transmitted as paper documents.

ARTICLE 8: FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

8.1 Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment is a Stipulated Sum.

END OF SECTION

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SECTION 00 26 00
PROCUREMENT SUBSTITUTION PROCEDURES

1.01 DEFINITIONS

A. Procurement Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Procurement and Contracting Documents, submitted prior to receipt of bids in accordance with Instructions to Bidders

B. Procurement Prior Approval Requests: Requests for approval of products or manufacturers from those required by the Contract Documents as defined by product selection procedures in Section 01 60 00 "Product Requirements."
   1. Procurement prior approval is required when products or manufacturers are listed in specifications under "Sole Product," "Sole Manufacturer," "Limited List of Products," or "Limited List of Manufacturers" introductory paragraphs.
   2. Procurement prior approval is not required when products or manufacturers are listed in specifications under "Non-Limited List of Products" or "Non-Limited List of Manufacturers" introductory paragraphs.
   3. Where use of "Sole Product," "Sole Manufacturer," "Limited List of Products," or "Limited List of Manufacturers" introductory paragraphs is not allowed by statute, procurement prior approval request is not required.

C. Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Contract Documents, submitted following Contract award. See the General Conditions and Section 012500 "Substitution Procedures" for conditions under which Substitution requests will be considered following Contract award.

1.02 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.03 PROCUREMENT SUBSTITUTIONS

A. Procurement Substitutions, General: By submitting a bid, the Bidder represents that its bid is based on materials and equipment described in the Procurement and Contracting Documents, including Addenda. Bidders are encouraged to request approval of qualifying substitute materials and equipment when the Specifications Sections list materials and equipment by product or manufacturer name.

B. Procurement Substitution Requests will be received and considered by Owner when the following conditions are satisfied, as determined by Architect; otherwise requests will be returned without action:
   1. Extensive revisions to the Contract Documents are not required.
   2. Proposed changes are in keeping with general intent of the Contract Documents, including level of quality of the Work represented by requirements therein.
   3. Request is fully documented and properly submitted.

1.04 SUBMITTALS

A. Procurement Substitution Request: Submit to Architect. Procurement Substitution Request must be made in writing in compliance with the following requirements:
   1. Requests for substitution of materials and equipment will be considered if received no later than 10 days prior to date of bid opening.
   2. Submittal Format, Electronic: Submit Procurement Substitution Request, using format provided on Project web-based bidding management software site.
      a. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specifications Sections and Drawing numbers.
      b. Provide complete documentation on both the product specified and the proposed substitute, including the following information as appropriate:

1) List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
2) Product data, including drawings and descriptions of products and fabrication and installation procedures.
3) Point-by-point comparison of specified and proposed substitute product data, fabrication drawings, and installation procedures.
4) Copies of current, independent third-party test data of salient product or system characteristics.
5) Samples where applicable or when requested by Architect.
6) Detailed comparison of significant qualities of proposed substitute with those of the Work specified. 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.
7) Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
8) Research reports, where applicable, evidencing compliance with building code in effect for Project, from ICC-ES.
9) Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, which will become necessary to accommodate proposed substitute.

c. Provide certification by manufacturer that proposed substitute is equal to or superior to that required by the Procurement and Contracting Documents, and that its in-place performance will be equal to or superior to product or equipment specified in the application indicated.
d. Bidder, in submitting the Procurement Substitution Request, waives the right to additional payment or an extension of Contract Time because of the failure of substitute to perform as represented in the Procurement Substitution Request.

B. Architect's Action:
1. Architect may request additional information or documentation necessary for evaluation of the Procurement Substitution Request. Architect will notify all Bidders of acceptance of proposed substitute by means of an Addendum to the Procurement and Contracting Documents.

C. Architect's approval of substitute during bidding does not relieve Contractor of the responsibility to submit required Shop Drawings and to comply with all other requirements of the Contract Documents.

END OF SECTION

RICHARDSON & ROBBINS BUILDING – R&R RESTROOM RENOVATION
DOVER, KENT COUNTY, DELAWARE
MJ1002000085

BID FORM

For Bids Due: _____ **To:** State of Delaware
Office of Management and Budget
Division of Facilities Management
122 Martin Luther King, Jr. Blvd. South
Dover, DE 19901

Name of Bidder: _____

Delaware Business License No.: _____ **Taxpayer ID No.:** _____

(Other License Nos.): _____

Phone No.: ( ) _____ - _____ **Fax No.: ( ) _____ - _____**

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____
($)

ALLOWANCES

Allowance value(s) indicated are included in the Base Bid as indicated in the Bid Form.

ALLOWANCE No. 1: Contingency Allowance: Include a contingency allowance of $25,000.00 for use according to Owner's written instructions.

Contingency Allowance No. 1: Twenty Five Thousand Dollars
($ 25,000.00)

Allowance Inclusion Acknowledged by: _____ (Bidder to Initial)

RICHARDSON & ROBBINS BUILDING – R&R RESTROOM RENOVATION
DOVER, KENT COUNTY, DELAWARE
MJ1002000085

BID FORM

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for thirty (30) days from the date of opening of bids (60 days for School Districts and Department of Education), and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid.

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

Should I/We be awarded this contract, I/We pledge to achieve substantial completion of all the work within _____calendar days of the Notice to Proceed.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address:_____
_____
_____
_____

Witness: _____ **By:** _____
(Authorized Signature)

(SEAL)

_____
(Title)

Date: _____

ATTACHMENTS

Sub-Contractor List
Non-Collusion Statement
Affidavit of Employee Drug Testing Program
Affidavit of Contractor Qualifications
Bid Security
(Others as Required by Project Manuals)

BID FORM

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 69, Section 6962(d)(10)b of the Delaware Code, the following subcontractor listing must accompany any bid submittal. The bidder must list **in each category** the full name and address (City & State) of the sub-contractor that the bidder will be using to perform the work and provide material for that subcontractor category. Should the bidder's listed subcontractor intend to provide any of their subcontractor category of work through a third-tier contractor, the bidder shall list that third-tier contractor's full name and address (City & State). **If the bidder intends to perform any category of work itself, it must list its full name and address.** For clarification, if the bidder intends to perform the work themselves, the bidder **may not** insert "not applicable", "N/A", "self" or anything other than its own full name and address (City & State). To do so shall cause the bid to be rejected. In addition, the failure to produce a completed subcontractor list with the bid submittal shall cause the bid to be rejected. If you have more than three (3) third-tier contractors to report in any subcontractor category, print out additional page(s) containing the appropriate category, complete the rest of your list of third-tier contractors for that category, notate the addition in parentheses as (CONTINUATION) next to the subcontractor category and an asterisk (*) next to any additional third-tier contractors, and submit it with your bid.

Subcontractor Category	Subcontractor	Address (City & State)	Subcontractors tax-payer ID # or Delaware Business license #
1.			
A.			
B.			
C.			
2.			
A.			
B.			
C.			

BID FORM (Continued)

3.	_____	_____	_____
A.	_____	_____	_____
B.	_____	_____	_____
C.	_____	_____	_____
4.	_____	_____	_____
A.	_____	_____	_____
B.	_____	_____	_____
C.	_____	_____	_____
5.	_____	_____	_____
A.	_____	_____	_____
B.	_____	_____	_____
C.	_____	_____	_____

BID FORM

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date *(to the Office of Management and Budget, Division of Facilities Management)*.

All the terms and conditions of MJ1002000085 have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

E-MAIL: _____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

RICHARDSON & ROBBINS BUILDING – R&R RESTROOM RENOVATION
DOVER, KENT COUNTY, DELAWARE
MJ1002000085

AFFIDAVIT
OF
CONTRACTOR QUALIFICATIONS

We hereby certify that we will abide by the contractor's qualifications outlined in the construction bid specifications for the duration of the contract term.

In accordance with Title 29, Chapter 69, Section 6962(d)(10)b.3 of the Delaware Code, after a contract has been awarded the successful bidder shall not substitute another subcontractor whose name was submitted on the Subcontractor Form except for the reasons in the statute and not without written consent from the awarding agency. Failure to utilize the subcontractors on the list will subject the successful bidder to penalties as outlined in the General Requirements Section 5.2 of the contract.

Contractor Name: _____

Contractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of _____ 20____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite, including subcontractors, that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of _____ 20____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

(This page intentionally left blank)

STATE OF DELAWARE

OFFICE OF MANAGEMENT AND BUDGET

BID BOND

TO ACCOMPANY PROPOSAL

(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____ _____ of _____ in the County of _____ _____ and State of _____ as **Principal**, and _____ _____ of _____ in the County of and State of _____ as **Surety**, legally authorized to do business in the State of Delaware ("**State**"), are held and firmly unto the **State** in the sum of ten percent (10%) of the total amount of the base bid plus ten percent (10%) of the total amount of all additive alternates not to exceed _____ _____ Dollars ($_____) of amount of bid on Contract No. **MJ1002000085**, to be paid to the State for the use and benefit of **State of Delaware, Office of Management and Budget, Division of Facilities Management** for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bonded **Principal** who has submitted to the **State of Delaware, Office of Management and Budget, Division of Facilities Management** a certain proposal to enter into this contract for the furnishing of certain material and/or services within the **State**, shall be awarded this Contract, and if said **Principal** shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the **State of Delaware, Office of Management and Budget, Division of Facilities Management** this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____ seal and dated this _____ day of _____ in the year of our Lord two thousand and _____ (20___).

SEALED, AND DELIVERED IN THE
Presence of

By: _____ .
Name of Bidder (Organization)

Corporate Seal

By: _____ .
Authorized Signature

Arrest _____ .

_____ .
Title

_____ .
Name of Surety

Witness _____ .

By: _____ .

_____ .
Title

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SECTION 00 52 13
STANDARD FORM OF AGREEMENT

The contract to be utilized on this project shall be the “Standard Form of Agreement Between Owner and Contractor” AIA Document A101-2017, including AIA Document A101 – 2017 Exhibit A, as well as Supplements to A101-2017 and Exhibit A and the State of Delaware’s General Requirements.

END OF SECTION

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AIA® Document A101™ – 2017

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)

The Owner and Contractor agree as follows.

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.

Sample

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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.

Sample

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☐ 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 to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 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.

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	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.)

Item	Price	Conditions for Acceptance

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

Item	Price

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

Item	Units and Limitations	Price per Unit ($0.00)

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

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

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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:

- **.1** 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

§ 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.)

Sample

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§ 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.)

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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.

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§ 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 A101™–2017, Standard Form of Agreement Between Owner and Contractor

.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction

.4 AIA Document E203™–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.)

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

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☐ The Sustainability Plan:

Title	Date	Pages

☐ Supplementary and other Conditions of the Contract:

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 A201™–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.

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
(Printed name and title)	*(Printed name and title)*

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AIA® Document A101™ – 2017 Exhibit A

Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the _____ day of _____ in the year _____
(In words, indicate day, month and year.)

for the following **PROJECT**:
(Name and location or address)

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

This document is intended to be used in conjunction with AIA Document A201™–2017, General Conditions of the Contract for Construction. Article 11 of A201™–2017 contains additional insurance provisions.

THE OWNER:
(Name, legal status and address)

THE CONTRACTOR:
(Name, legal status and address)

Sample

TABLE OF ARTICLES

A.1 GENERAL

A.2 OWNER'S INSURANCE

A.3 CONTRACTOR'S INSURANCE AND BONDS

A.4 SPECIAL TERMS AND CONDITIONS

ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A201™–2017, General Conditions of the Contract for Construction.

ARTICLE A.2 OWNER'S INSURANCE

§ A.2.1 General

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

§ A.2.2 Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

§ A.2.3 Required Property Insurance

§ A.2.3.1 Unless this obligation is placed on the Contractor pursuant to Section A.3.3.2.1, the Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Owner's

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property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed and materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section A.2.3.1.3, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

§ A.2.3.1.1 Causes of Loss. The insurance required by this Section A.2.3.1 shall provide coverage for direct physical loss or damage, and shall not exclude the risks of fire, explosion, theft, vandalism, malicious mischief, collapse, earthquake, flood, or windstorm. The insurance shall also provide coverage for ensuing loss or resulting damage from error, omission, or deficiency in construction methods, design, specifications, workmanship, or materials. Sub-limits, if any, are as follows:
(Indicate below the cause of loss and any applicable sub-limit.)

Cause of Loss	Sub-Limit

§ A.2.3.1.2 Specific Required Coverages. The insurance required by this Section A.2.3.1 shall provide coverage for loss or damage to falsework and other temporary structures, and to building systems from testing and startup. The insurance shall also cover debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and reasonable compensation for the Architect's and Contractor's services and expenses required as a result of such insured loss, including claim preparation expenses. Sub-limits, if any, are as follows:
(Indicate below type of coverage and any applicable sub-limit for specific required coverages.)

Coverage	Sub-Limit

§ A.2.3.1.3 Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section A.2.3.1 or, if necessary, replace the insurance policy required under Section A.2.3.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 12.2.2 of the General Conditions.

§ A.2.3.1.4 Deductibles and Self-Insured Retentions. If the insurance required by this Section A.2.3 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

§ A.2.3.2 Occupancy or Use Prior to Substantial Completion. The Owner's occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.2.3.1 have consented in writing to the continuance of coverage. The Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

§ A.2.3.3 Insurance for Existing Structures
If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

§ A.2.4 Optional Extended Property Insurance.
The Owner shall purchase and maintain the insurance selected and described below.
(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. For each type of insurance selected, indicate applicable limits of coverage or other conditions in the fill point below the selected item.)

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☐ **§ A.2.4.1 Loss of Use, Business Interruption, and Delay in Completion Insurance,** to reimburse the Owner for loss of use of the Owner's property, or the inability to conduct normal operations due to a covered cause of loss.

☐ **§ A.2.4.2 Ordinance or Law Insurance,** for the reasonable and necessary costs to satisfy the minimum requirements of the enforcement of any law or ordinance regulating the demolition, construction, repair, replacement or use of the Project.

☐ **§ A.2.4.3 Expediting Cost Insurance**, for the reasonable and necessary costs for the temporary repair of damage to insured property, and to expedite the permanent repair or replacement of the damaged property.

☐ **§ A.2.4.4 Extra Expense Insurance,** to provide reimbursement of the reasonable and necessary excess costs incurred during the period of restoration or repair of the damaged property that are over and above the total costs that would normally have been incurred during the same period of time had no loss or damage occurred.

☐ **§ A.2.4.5 Civil Authority Insurance,** for losses or costs arising from an order of a civil authority prohibiting access to the Project, provided such order is the direct result of physical damage covered under the required property insurance.

☐ **§ A.2.4.6 Ingress/Egress Insurance,** for loss due to the necessary interruption of the insured's business due to physical prevention of ingress to, or egress from, the Project as a direct result of physical damage.

☐ **§ A.2.4.7 Soft Costs Insurance,** to reimburse the Owner for costs due to the delay of completion of the Work, arising out of physical loss or damage covered by the required property insurance: including construction loan fees; leasing and marketing expenses; additional fees, including those of architects, engineers, consultants, attorneys and accountants, needed for the completion of the construction, repairs, or reconstruction; and carrying costs such as property taxes, building permits, additional interest on loans, realty taxes, and insurance premiums over and above normal expenses.

§ A.2.5 Other Optional Insurance.

The Owner shall purchase and maintain the insurance selected below.

(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance.)

☐ **§ A.2.5.1 Cyber Security Insurance** for loss to the Owner due to data security and privacy breach, including costs of investigating a potential or actual breach of confidential or private information. *(Indicate applicable limits of coverage or other conditions in the fill point below.)*

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☐ **§ A.2.5.2 Other Insurance**
(List below any other insurance coverage to be provided by the Owner and any applicable limits.)

Coverage	Limits

ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

§ A.3.1 General

§ A.3.1.1 Certificates of Insurance. The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy or policies.

§ A.3.1.2 Deductibles and Self-Insured Retentions. The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor.

§ A.3.1.3 Additional Insured Obligations. To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, CG 20 32 07 04.

§ A.3.2 Contractor's Required Insurance Coverage

§ A.3.2.1 The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:
(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.2.2 Commercial General Liability

§ A.3.2.2.1 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than _____ ($__) each occurrence, _____ ($__) general aggregate, and _____ ($__) aggregate for products-completed operations hazard, providing coverage for claims including

- **.1** damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
- **.2** personal injury and advertising injury;
- **.3** damages because of physical damage to, or destruction of, tangible property, including the loss of use of such property;
- **.4** bodily injury or property damage arising out of completed operations; and
- **.5** the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

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§ A.3.2.2.2 The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

.1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.

.2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.

.3 Claims for bodily injury other than to employees of the insured.

.4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured

.5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.

.6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.

.7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.

.8 Claims related to roofing, if the Work involves roofing.

.9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.

.10 Claims related to earth subsidence or movement, where the work involves such hazards.

.11 Claims related to explosion, collapse, and underground hazards, where the Work involves such hazards.

§ A.3.2.3 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than _____ ($__) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

§ A.3.2.4 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ A.3.2.5 Workers' Compensation at statutory limits.

§ A.3.2.6 Employers' Liability with policy limits not less than _____ ($__) each accident, _____ ($__) each employee, and _____ ($__) policy limit.

§ A.3.2.7 Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks

§ A.3.2.8 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than _____ ($__) per claim and _____ ($__) in the aggregate.

§ A.3.2.9 If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than _____ ($__) per claim and _____ ($__) in the aggregate.

§ A.3.2.10 Coverage under Sections A.3.2.8 and A.3.2.9 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than _____ ($__) per claim and _____ ($__) in the aggregate.

§ A.3.2.11 Insurance for maritime liability risks associated with the operation of a vessel, if the Work requires such activities, with policy limits of not less than_____ ($__) per claim and_____ ($__) in the aggregate.

§ A.3.2.12 Insurance for the use or operation of manned or unmanned aircraft, if the Work requires such activities, with policy limits of not less than_____ ($__) per claim and_____ ($__) in the aggregate.

Sample

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§ A.3.3 Contractor's Other Insurance Coverage

§ A.3.3.1 Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.3.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1.

(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)

☐ **§ A.3.3.2.1** Property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible, and the Owner shall be responsible for losses within the deductible. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below.

(Where the Contractor's obligation to provide property insurance differs from the Owner's obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)

☐ **§ A.3.3.2.2 Railroad Protective Liability Insurance,** with policy limits of not less than _____ ($__) per claim and _____ ($__) in the aggregate, for Work within fifty (50) feet of railroad property.

☐ **§ A.3.3.2.3 Asbestos Abatement Liability Insurance,** with policy limits of not less than _____ ($__) per claim and _____ ($__) in the aggregate, for liability arising from the encapsulation, removal, handling, storage, transportation, and disposal of asbestos-containing materials.

☐ **§ A.3.3.2.4** Insurance for physical damage to property while it is in storage and in transit to the construction site on an "all-risks" completed value form.

☐ **§ A.3.3.2.5** Property insurance on an "all-risks" completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.

☐ **§ A.3.3.2.6 Other Insurance**

(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)

Coverage	**Limits**

Sample

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§ A.3.4 Performance Bond and Payment Bond

The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:
(Specify type and penal sum of bonds.)

Type	Penal Sum ($0.00)
Payment Bond	
Performance Bond	

Payment and Performance Bonds shall be AIA Document A312™, Payment Bond and Performance Bond, or contain provisions identical to AIA Document A312™, current as of the date of this Agreement.

ARTICLE A.4 SPECIAL TERMS AND CONDITIONS

Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:

Sample

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SECTION 00 54 13
SUPPLEMENT TO AGREEMENT

The following supplements modify the "Standard Form of Agreement Between Owner and Contractor," AIA Document A101-2017. Where a portion of the Standard Form of Agreement is modified or deleted by the following, the unaltered portions of the Standard Form of Agreement shall remain in effect.

ARTICLE 3: DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

3.1 Delete paragraph 3.1 in its entirety and replace with the following:
"The date of Commencement of the Work shall be a date set forth in a notice to proceed issued by the Owner."

ARTICLE 5: PAYMENTS

5.1 PROGRESS PAYMENTS

5.1.3 Delete paragraph 5.1.3 in its entirety and replace with the following:
"Provided that a valid Application for Payment is received by the Architect that meets all requirements of the Contract, payment shall be made by the Owner not later than 30 days after the Owner receives the valid Application for Payment."

5.3 Insert the interest rate of "1% per month not to exceed 12% per annum."

ARTICLE 6: DISPUTE RESOLUTION

6.2 BINDING DISPUTE RESOLUTION

Check the box "Other" – and add the following sentence:
"Any remedies available in law or in equity."

ARTICLE 7: TERMINATION or SUSPENSION

7.1.1.1 Delete paragraph 7.1.1.1 in its entirety.

ARTICLE 8: MISCELLANEOUS PROVISIONS

8.4 Delete paragraph 8.4 in its entirety and replace with the following:
"The Contractor's representative shall not be changed without ten days written notice to the Owner."

END OF SECTION

(This page intentionally left blank)

SECTION 00 54 14
SUPPLEMENT TO EXHIBIT A

The following supplements modify the "Standard Form of Agreement Between Owner and Contractor," AIA Document A101-2017 Exhibit A Insurance and Bonds. Where a portion of the Standard Form of Agreement is modified or deleted by the following, the unaltered portions of the Standard Form of Agreement shall remain in effect.

ARTICLE A.2 OWNER'S INSURANCE

A.2.1 General

Delete paragraph A.2.1 in its entirety.

A2.1 Liability Insurance

Delete paragraph A.2.2 in its entirety, except in the case of school projects this paragraph shall remain.

A.2.3 Required Property Insurance

Delete paragraph A.2.3 in its entirety.

A.2.4 Optional Extended Property Insurance

Delete paragraph A.2.4 in its entirety.

A.2.5 Other Optional Insurance

Delete paragraph A.2.5 in its entirety.

ARTICLE A.3 CONTRACTORS INSURANCE AND BONDS

A.3.1.1 Strike the last sentence of the paragraph.

A.3.1.3 Additional Insured Obligations

In the first sentence after "coverage to include (1)" delete "(1) the Owner,".

Strike the remainder of the first sentence beginning at the semicolon "; and (2) the Owner" through the end of the sentence.

Delete the second sentence in its entirety.

A.3.2.2.1 Insert "$1,000,000.00" in the blank for each occurrence.

Insert "$3,000,000.00" in the blank for general aggregate.

Insert “$3,000,000.00” in the blank for aggregate for products-completed operations hazard.

A.3.2.3 Insert “$1,000,000.00” in the blank for per accident.

A.3.2.6 Insert “$500,000.00” in the blank for each accident.

Insert “$500,000.00” in the blank for each employee.

Insert “$500,000.00” in the blank for policy limit.

A.3.2.8 Insert “$1,000,000.00” in the blank for per claim.

Insert “$3,000,000.00” in the blank for in the aggregate.

A.3.2.9 Insert “$1,000,000.00” in the blank for per claim.

Insert “$3,000,000.00” in the blank for in the aggregate.

A.3.2.10 Insert “$2,000,000.00” in the blank for per claim.

Insert “$4,000,000.00” in the blank for in the aggregate.

A.3.2.11 Strike in its entirety.

A.3.2.12 Strike in its entirety.

A.3.3.2.1 Delete paragraph 3.3.2.1 in its entirety

A.3.3.2.2 Strike in its entirety.

A.3.3.2.3 Insert “$1,000,000.00” in the blanks for per claim.

Insert “$3,000,000.00” in the blanks for in the aggregate.

A.3.4 Insert the actual contract price in both the Payment Bond and the Performance Bond Penal Sum blanks. It must be 100% of the contract price.

Strike the last sentence in this section and replace with “Payment and Performance Bonds shall be in the standard form issued by the Delaware Office of Management and Budget.”

END OF SECTION

STATE OF DELAWARE
OFFICE OF MANAGEMENT AND BUDGET

PERFORMANCE BOND

Bond Number: _____ .

KNOW ALL PERSONS BY THESE PRESENTS, that we, _____, as principal ("**Principal**"), and _____, a _____ corporation, legally authorized to do business in the State of Delaware, as surety ("**Surety**"), are held and firmly bound unto the **State of Delaware, Office of Management and Budget, Division of Facilities Management**, in the amount of _____ ($_____), to be paid to **Owner**, for which payment well and truly to be made, we do bind ourselves, our and each and every of our heirs, executors, administrations, successors and assigns, jointly and severally, for and in the whole, firmly by these presents.

Sealed with our seals and dated this _____ day of _____, 20__.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, that if **Principal**, who has been awarded by **Owner** that certain contract known as Contract No. **MJ1002000085** dated the _____ day of _____, 20__ (the "Contract"), which Contract is incorporated herein by reference, shall well and truly provide and furnish all materials, appliances and tools and perform all the work required under and pursuant to the terms and conditions of the Contract and the Contract Documents (as defined in the Contract) or any changes or modifications thereto made as therein provided, shall make good and reimburse **Owner** sufficient funds to pay the costs of completing the Contract that **Owner** may sustain by reason of any failure or default on the part of **Principal**, and shall also indemnify and save harmless **Owner** from all costs, damages and expenses arising out of or by reason of the performance of the Contract and for as long as provided by the Contract; then this obligation shall be void, otherwise to be and remain in full force and effect.

Surety, for value received, hereby stipulates and agrees, if requested to do so by **Owner**, to fully perform and complete the work to be performed under the Contract pursuant to the terms, conditions and covenants thereof, if for any cause **Principal** fails or neglects to so fully perform and complete such work.

Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of **Surety** and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition or change in or to the Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any work to be performed or any monies due or to become due thereunder; and **Surety** hereby waives notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to **Surety** as though done or omitted to be done by or in relation to **Principal**.

Surety hereby stipulates and agrees that no modifications, omissions or additions in or to the terms of the Contract shall in any way whatsoever affect the obligation of **Surety** and its bond.

Any proceeding, legal or equitable, under this Bond may be brought in any court of competent jurisdiction in the State of Delaware. Notices to **Surety** or Contractor may be mailed or delivered to them at their respective addresses shown below.

IN WITNESS WHEREOF, **Principal** and **Surety** have hereunto set their hand and seals, and such of them as are corporations have caused their corporate seal to be hereto affixed and these presents to be signed by their duly authorized officers, the day and year first above written.

PRINCIPAL

Name: _____ .

Witness or Attest:

Address: _____ .

_____ .

By: _____(SEAL)

Name:

Name:

Title:

(Corporate Seal)

SURETY

Name: _____ .

Witness or Attest:

Address: _____ .

_____ .

By: _____(SEAL)

Name:

Name:

Title:

(Corporate Seal)

STATE OF DELAWARE
OFFICE OF MANAGEMENT AND BUDGET

PAYMENT BOND

Bond Number: _____ .

KNOW ALL PERSONS BY THESE PRESENTS, that we, _____, as principal ("**Principal**"), and _____, a _____ corporation, legally authorized to do business in the State of Delaware, as surety ("**Surety**"), are held and firmly bound unto the **State of Delaware, Office of Management and Budget, Division of Facilities Management**, in the amount of _____ ($_____), to be paid to **Owner**, for which payment well and truly to be made, we do bind ourselves, our and each and every of our heirs, executors, administrations, successors and assigns, jointly and severally, for and in the whole, firmly by these presents.

Sealed with our seals and dated this _____ day of _____, 20__.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, that if **Principal**, who has been awarded by **Owner** that certain contract known as Contract No. **MJ1002000085** dated the _____ day of _____, 20__ (the "Contract"), which Contract is incorporated herein by reference, shall well and truly pay all and every person furnishing materials or performing labor or service in and about the performance of the work under the Contract, all and every sums of money due him, her, them or any of them, for all such materials, labor and service for which **Principal** is liable, shall make good and reimburse **Owner** sufficient funds to pay such costs in the completion of the Contract as **Owner** may sustain by reason of any failure or default on the part of **Principal**, and shall also indemnify and save harmless **Owner** from all costs, damages and expenses arising out of or by reason of the performance of the Contract and for as long as provided by the Contract; then this obligation shall be void, otherwise to be and remain in full force and effect.

Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of **Surety** and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition or change in or to the Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any work to be performed or any monies due or to become due thereunder; and **Surety** hereby waives notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to **Surety** as though done or omitted to be done by or in relation to **Principal**.

Surety hereby stipulates and agrees that no modifications, omissions or additions in or to the terms of the Contract shall in any way whatsoever affect the obligation of **Surety** and its bond.

Any proceeding, legal or equitable, under this Bond may be brought in any court of competent jurisdiction in the State of Delaware. Notices to **Surety** or Contractor may be mailed or delivered to them at their respective addresses shown below.

IN WITNESS WHEREOF, **Principal** and **Surety** have hereunto set their hand and seals, and such of them as are corporations have caused their corporate seal to be hereto affixed and these presents to be signed by their duly authorized officers, the day and year first above written.

PRINCIPAL

Name: _____ .

Witness or Attest:

Address: _____ .

_____ .

By: _____(SEAL)

Name:

Name:
Title:

(Corporate Seal)

SURETY

Name: _____ .

Witness or Attest:

Address: _____ .

_____ .

By: _____(SEAL)

Name:

Name:
Title:

(Corporate Seal)

SECTION 00 62 76
APPLICATION AND CERTIFICATE FOR PAYMENT FORMS

The form for submission and approval for the Contractor's payment shall be submitted using the American Institute of Architects Document AIA forms G702 and G703 (1992 Edition) entitled Application and Certificate for Payment and Continuation Sheet, respectively.

END OF SECTION

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AIA® Document G702™ – 1992

Application and Certificate for Payment

TO OWNER:

PROJECT:

APPLICATION NO:

PERIOD TO:

CONTRACT FOR:

CONTRACT DATE:

PROJECT NOS: / /

Distribution to:

OWNER ☐

ARCHITECT ☐

CONTRACTOR ☐

FIELD ☐

OTHER ☐

FROM CONTRACTOR:

VIA ARCHITECT:

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
AIA Document G703™, Continuation Sheet, is attached.

1. ORIGINAL CONTRACT SUM ..... $ _____

2. NET CHANGE BY CHANGE ORDERS ..... $ _____

3. CONTRACT SUM TO DATE *(Line 1 ± 2)* ..... $ _____

4. TOTAL COMPLETED & STORED TO DATE *(Column G on G703)* ..... $ _____

5. RETAINAGE:

a. _____% of Completed Work
(Columns D + E on G703) $ _____

b. _____% of Stored Material
(Column F on G703) $ _____

Total Retainage *(Lines 5a + 5b, or Total in Column I of G703)* ..... $ _____

6. TOTAL EARNED LESS RETAINAGE ..... $ _____
(Line 4 minus Line 5 Total)

7. LESS PREVIOUS CERTIFICATES FOR PAYMENT ..... $ _____
(Line 6 from prior Certificate)

8. CURRENT PAYMENT DUE ..... $ _____

9. BALANCE TO FINISH, INCLUDING RETAINAGE
(Line 3 minus Line 6) $ _____

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	$	$
Total approved this month	$	$
TOTAL	$	$
NET CHANGES by Change Order	$	

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: _____ Date: _____

State of:

County of:

Subscribed and sworn to before me this day of

Notary Public:

My commission expires:

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED ..... $ _____

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT:

By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

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Sample

AIA® Document G703™ – 1992

Continuation Sheet

AIA Document G702™–1992, Application and Certificate for Payment, or G732™–2009, Application and Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached.
In tabulations below, amounts are in US dollars.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO:
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED *(Not in D or E)*	TOTAL COMPLETED AND STORED TO DATE *(D+E+F)*	% *(G ÷ C)*	BALANCE TO FINISH *(C – G)*	RETAINAGE *(If variable rate)*
			FROM PREVIOUS APPLICATION *(D + E)*	THIS PERIOD					
	GRAND TOTAL								

Sample

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SECTION 00 72 13
GENERAL CONDITIONS

The General Conditions of this Contract are as stated in the American Institute of Architects Document AIA A201 (2017 Edition) entitled General Conditions of the Contract for Construction as revised by the Supplementary General Conditions and is part of this project manual as if herein written in full.

END OF SECTION

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AIA® Document A201™ – 2017

General Conditions of the Contract for Construction

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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15 CLAIMS AND DISPUTES

Sample

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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, Sub-subcontractors, 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 E203™–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 E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–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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information model, and each of their agents and employees.

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 Contract Sum under (3) above, 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, or procedures.

§ 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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remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 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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§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 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 certified by such professional, if prepared by others, shall bear 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.

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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

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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, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor 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 that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the 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 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

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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 Sum or 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 subsequent Applications for Payment.

§ 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 reason for withholding 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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foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 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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endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor 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. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 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 Sub-subcontractors 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, sub-subcontractors, 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 sub-subcontractors. 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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Contractor's expense.

§ 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.

§ 12.2.2.2 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.

§ 12.2.2.3 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.

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§ 14.1.2 The Contractor may terminate the Contract if, 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, 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 Subcontractor, 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.

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§ 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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15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 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 13
SUPPLEMENTARY GENERAL CONDITION

The following supplements modify the “General Conditions of the Contract for Construction,” AIA Document A201-2017. Where a portion of the General Conditions is modified or deleted by the Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect.

TABLE OF ARTICLES

1. GENERAL PROVISIONS
2. OWNER
3. CONTRACTOR
4. ADMINISTRATION OF THE CONTRACT
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6. CONSTRUCTION BY OWNER OR SEPARATE CONTRACTORS
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13. MISCELLANEOUS PROVISIONS
14. TERMINATION OR SUSPENSION OF THE CONTRACT
15. CLAIMS AND DISPUTES

ARTICLE 1: GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

Strike the last sentence of Section 1.1.1 in its entirety and replace with the following:

"The Contract Documents also include Advertisement for Bid, Instructions to Bidder, sample forms, the Bid Form, the Contractor's completed Bid and the Award Letter."

Add the following Section:

"1.1.1.1 In the event of conflict or discrepancies among the Contract Documents, the Documents prepared by the State of Delaware, Division of Facilities Management shall take precedence over all other documents."

1.1.8 INITIAL DECISION MAKER

Strike the last sentence of Section 1.1.8 in its entirety and add the following to the end of the remaining sentence:

"and certify termination of the Agreement under Section14.2.2."

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

1.2.1.1 Insert "if possible" at the end of the second sentence.

Add the following Sections:

"1.2.4 In the case of an inconsistency between the Drawings and the Specifications, or within either document not clarified by addendum, the better quality or greater quantity of work shall be provided in accordance with the Architect's interpretation."

1.2.5 The word "PROVIDE" as used in the Contract Documents shall mean "FURNISH AND INSTALL" and shall include, without limitation, all labor, materials, equipment, transportation, services and other items required to complete the Work."

"1.2.6 The word "PRODUCT" as used in the Contract Documents means all materials, systems and equipment."

1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

Strike Section 1.5.1 in its entirety and replace with the following:

All pre-design studies, drawings, specifications and other documents, including those in electronic form, prepared by the Architect under this Agreement are, and shall remain, the property of the Owner whether the Project for which they are made is executed or not. Such documents may be used by the Owner to construct one or more like Projects

without the approval of, or additional compensation to, the Architect. The Contractor, Subcontractors, Sub-subcontractors, and Material or Equipment Suppliers are authorized to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Architect and the Architect's consultants appropriate to and for use in the execution of their Work under the Contract Documents. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or Material and Equipment Supplier on other Projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and Architect's consultants.

The Architect shall not be liable for injury or damage resulting from the re-use of drawings and specifications if the Architect is not involved in the re-use Project. Prior to re-use of construction documents for a Project in which the Architect is not also involved, the Owner will remove from such documents all identification of the original Architect, including name, address and professional seal or stamp."

Strike Section 1.5.2 in its entirety.

1.7 DIGITAL DATA USE AND TRANSMISSION

Strike Section 1.7 in its entirety and replace with the following:

"The parties shall agree upon protocols governing transmission and use of Instruments of Service or any other information or documentation in digital form."

1.8 BUILDING INFORMATION MODELS USE AND RELIANCE

Strike Section 1.8 in its entirety.

ARTICLE 2: OWNER

2.2 EVIDENCE OF THE OWNERS FINANCIAL ARRANGEMENTS

Strike Section 2.2 in its entirety.

2.3 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.3.3 Strike 2.3.3 in its entirety.

2.3.4 Add the following sentence at the end of the paragraph:

"The Contractor, at their expense shall bear the costs to accurately identify the location of all underground utilities in the area of their excavation and shall bear all cost for any repairs required, out of failure to accurately identify said utilities."

Strike Section 2.3.6 in its entirety and replace with the following:

"2.3.6 The Contractor shall be furnished free of charge (1) electronic set of the Drawings and Project Manuals. Additional sets will be furnished at the cost of reproduction, postage and handling."

2.5 OWNER'S RIGHT TO CARRY OUT THE WORK

Add ", except as outlined in Section 3.15" after the reference to "Article 15" at the end of the last sentence of the Section.

ARTICLE 3: CONTRACTOR

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.2.2 Add "and Owner" after "report to the Architect" in the second sentence.

3.2.4 Strike "subject to Section 15.1.7" in the second sentence.

3.2.4 Strike the third sentence.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

Add the following Sections:

"3.3.2.1 The Contractor shall immediately remove from the Work, whenever requested to do so by the Owner, any person who is considered by the Owner or Architect to be incompetent or disposed to be so disorderly, or who for any reason is not satisfactory to the Owner, and that person shall not again be employed on the Work without the consent of the Owner or the Architect."

"3.3.4 The Contractor must provide suitable storage facilities at the Site for the proper protection and safe storage of their materials, or as otherwise identified by the specifications. Consult the Owner and the Architect before storing any materials."

"3.3.5 When any room is used as a shop, storeroom, office, etc., by the Contractor or Subcontractor(s) during the construction of the Work, the Contractor making use of these areas will be held responsible for any repairs, patching or cleaning arising from such use."

3.4 LABOR AND MATERIALS

Add the Following Sections:

"3.4.4 Before starting the Work, each Contractor shall carefully examine all preparatory Work that has been executed to receive their Work. Check carefully, by whatever means are required, to ensure that its Work and adjacent, related Work, will finish to proper contours, planes and levels. Promptly notify the Architect & Owner of any defects or imperfections in preparatory Work which will in any way affect satisfactory completion of its Work. Absence of such notification will be construed as an acceptance of preparatory Work and later claims of defects will not be recognized."

"3.4.5 Under no circumstances shall the Contractor's Work proceed prior to preparatory Work having been completely cured, dried and/or otherwise made satisfactory to receive this Work. Responsibility for timely installation of all materials rests solely with the Contractor responsible for that Work, who shall maintain coordination at all times."

3.5 WARRANTY

Add the following Sections:

“3.5.3 The Contractor will guarantee all materials and workmanship against original defects, except injury from proper and usual wear when used for the purpose intended, for two years after Acceptance by the Owner, and will maintain all items in perfect condition during the period of warranty.”

“3.5.4 Defects appearing during the period of warranty will be made good by the Contractor at his expense upon demand of the Owner, it being required that all work will be in perfect condition when the period of warranty will have elapsed.”

“3.5.5 Upon notification by the Owner of a defect covered by the Contractor’s warranty, the Contractor shall respond within 4 hours of the notification.”

“3.5.6 In addition to the General Warranty there are other warranties required for certain items for different periods of time than the two years as above and are particularly so stated in that part of the specifications referring to same. The said warranties will commence at the same time as the General Warranty.”

“3.5.7 If the Contractor fails to remedy any failure, defect or damage within a reasonable time after receipt of notice, the Owner will have the right to replace, repair, or otherwise remedy the failure, defect or damage at the Contractor’s expense.”

3.8 ALLOWANCES

Add the following Section:

3.8.1.1 For costs to be covered under a project allowance, (included in the schedule of values) the Contractor shall submit a summary of those costs anticipated and an Allowance Access Authorization Form to the Architect and Owner, reflecting the projected costs. The Allowance Access Authorization Form must be signed by the Owner prior to initiating any work associated with the allowance.”

3.10 CONTRACTOR’S CONSTRUCTION AND SUBMITTAL SCHEDULES

3.10.1 Add “estimated” after “and the” and before “date of” in the second sentence.

3.10.2 Strike “and thereafter as necessary to maintain a current submittal schedule” in the first sentence.

3.11 DOCUMENTS AND SAMPLES AT THE SITE

Add the following Sections:

“3.11.1 During the course of the Work, the Contractor shall maintain a record set of drawings on which the Contractor shall mark the actual physical location of all piping, valves, equipment, conduit, outlets, access panels, controls, actuators, including all

appurtenances that will be concealed once construction is complete, etc., including all invert elevations."

"3.11.2 At the completion of the project, the Contractor shall obtain a set of the conformed contract drawings from the Architect, and neatly transfer all information outlined in 3.11.1 to provide a complete record of the as-built conditions."

"3.11.3 Upon completion of the work noted in 3.11.2 the contractor shall schedule a meeting with the Architect/Engineer and Owner to review the final record drawings and closeout documents prior to submission. After this meeting the Contractor shall make adjustments per the review and submit one (1) original markup and (2) copies of the red line drawings (as-built conditions, to the Owner and one (1) print to the Architect. In addition, attach one complete set of the as-built documents to each of the Operating and Maintenance Instructions/Manuals. The Contractor will include (2) USB drives, each containing all "red line drawings (as-built) and Closeout Documents properly tabbed in accordance with closeout requirements as defined elsewhere in the contract documents."

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

3.12.10.2 Strike "If the Contract Documents require" from the beginning of the sentence.

3.12.10.2 Strike "to" between "professional" and certify" and replace with "shall".

3.17 Insert "indemnify and" between "shall" and "hold" in the second sentence.

ARTICLE 4: ADMINISTRATION OF THE CONTRACT

4.2 ADMINISTRATION OF THE CONTRACT

4.2.7 Strike the first sentence and replace with the following:

"The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples for the purpose of checking for conformance with the Contract Documents."

4.2.7 Strike the second sentence and replace with the following:

"The Architect's action will be taken with such reasonable promptness as to cause no delay in the Work in the activities of the Owner, Contractor or separate Contractors, while allowing sufficient time in the Owner's professional judgment to permit adequate review."

Add the following Section:

"4.2.10.1 There will be no full-time Project Representative provided by the Owner or Architect on this project."

"4.2.13 Add "and in compliance with all local requirements." to the end of the sentence."

ARTICLE 5: SUBCONTRACTORS

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.2 Strike Section 5.2.3 in its entirety and replace with the following:

"If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection, subject to the statutory requirements of 29 Delaware Code § 6962(d)(10)b.3 and 4."

5.2.4 Strike Section 5.2.4 in its entirety and replace with the following:

"The Contractor may not substitute any Subcontractor listed in its Bid unless the Contractor complies with the requirements of 29 Delaware Code § 6962(d)(10)b.3 and 4. Failure to comply with this requirement shall subject the Contractor to a penalty as outlined in Section 5.2 of the Owner's General Requirements."

Add the following Section:

"5.2.5 The Contractor shall comply and shall ensure all Subcontractors comply with all requirements for drug testing as set forth in TITLE 19 LABOR DELAWARE ADMINISTRATIVE CODE 4000 Office of Management and Budget 4100 Division of Facilities Management **4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects**."

5.1.2 The decision of the awarding Agency as to whether a Bidder who list itself as the Subcontractor for a Subcontractor category shall be final and binding upon all Bidders, and no action of any nature shall lie against any awarding agency or its employees or officers because of its decision in this regard.

5.1.3 After such a Contract has been awarded, the successful Bidder shall not substitute another Subcontractor for any Subcontractor whose name was set forth in the statement which accompanied the Bid without the written consent of the awarding Agency.

5.1.4 No Agency shall consent to any substitution of Subcontractors unless the Agency is satisfied that the Subcontractor whose name is on the Bidders accompanying statement:

ARTICLE 6: CONSTRUCTION BY OWNER OR SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 Strike "and waiver of subrogation" from the end of the second sentence.

6.1.4 Strike Section 6.1.4 in its entirety.

6.2 MUTUAL RESPONSIBILITY

6.2.3 Strike "shall" and replace with "may" in the second sentence.

ARTICLE 7: CHANGES IN THE WORK

(SEE ARTICLE 7: CHANGES IN WORK IN THE STATE OF DELAWARE DIVISION OF FACILITIES MANAGEMENT GENERAL REQUIREMENTS)

7.2 CHANGE ORDERS

Add the following Sections:

"7.2.2 In addition to the above:

7.2.2.1 The General Contractor is allowed a fifteen percent (15%) markup for overhead and profit for additional work performed by the General Contractor's own forces.

7.2.2.2 For additional subcontractor work, the Subcontractor is allowed a fifteen (15) percent overhead and profit on change order work above and beyond the direct costs stated previously. To this amount, the General Contractor will be allowed a mark-up not exceeding seven- and one-half percent (7.5%) on the subcontractor's work.

7.2.2.3 Where the Third-Tier Contractor is going to be completing the additional work, the Third-Tier contractor will be allowed a markup of fifteen percent (15%) overhead and profit on changes order work above and beyond the direct costs stated previously. To this amount, the Subcontractor will be allowed a markup not to exceed seven and one-half percent (7.5%) on the Third-Tier Contractor's work and the General Contractor will be allowed a markup not to exceed seven and one-half percent (7.5%) of the amount of the Subcontractor's markup.

7.2.2.5 These markups shall include all costs including, but not limited to: overhead, profit, bonds, insurance, supervision, etc."

7.3.4.1 Strike "and other employee costs approved by the Architect "after "worker's compensation insurance,"

7.3.4.4 Add "work attributable to the" before "change" at the end of the sentence

7.4 MINOR CHANGES IN THE WORK

Add "unless such changes are approved" at the end of the third sentence.

ARTICLE 8: TIME

8.2 PROGRESS AND COMPLETION

8.2.1 Add the following Section:

"8.2.1.1 Refer to Project Specifications Section SUMMARY OF WORK for Contract time requirements."

8.2.2 After "by the Contractor" strike "and" and insert "to".

8.2.4 Add the following Section:

"8.2.4 If the Work falls behind the Progress Schedule as submitted by the Contractor, the Contractor shall employ additional labor and/or equipment necessary to bring the Work into compliance with the Progress Schedule at no additional cost to the Owner."

8.3 DELAYS AND EXTENSION OF TIME

8.3.1 Strike "binding dispute resolution" and insert "any and all remedies at law or in equity".

Add the following Section:

"8.3.2.1 The Contractor shall update the status of the suspension, delay, or interruption of the Work with each Application for Payment. (The Contractor shall report the termination of such cause immediately upon the termination thereof.) Failure to comply with this procedure shall constitute a waiver for any claim for adjustment of time or price based upon said cause."

Strike Section 8.3.3 in its entirety and replace with the following:

8.3.3 "Except in the case of a suspension of the Work directed by the Owner, an extension of time under the provisions of Section 8.3.1 shall be the Contractor's sole remedy in the progress of the Work and there shall be no payment or compensation to the Contractor for any expense or damage resulting from the delay."

Add the following Section:

"8.3.4 By permitting the Contractor to work after the expired time for completion of the project, the Owner does not waive their rights under the Contract."

ARTICLE 9: PAYMENTS AND COMPLETION

9.2 SCHEDULE OF VALUES

Add the following Sections:

"9.2.1 The Schedule of Values shall be submitted using AIA Document G703, Continuation Sheet to G702."

"9.2.2 The Schedule of Values is to include a line item for Project Closeout Document Submittal. The value of this item is to be no less than 1.5% of the initial contract amount."

9.3 APPLICATIONS FOR PAYMENT

9.3.1 Strike Section 9.3.1 in its entirety and replace with the following:

"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 for completed portions of the Work. The application shall be

notarized 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."

Add the following Sections:

"9.3.1.3 Application for Payment shall be submitted on AIA Document G702 "Application and Certificate for Payment", supported by AIA Document G703 "Continuation Sheet". Said Applications shall be fully executed and notarized."

"9.3.4 Until Closeout Documents have been received and outstanding items completed the Owner will pay 95% (ninety-five percent) of the amount due the Contractor on account of progress payments."

"9.3.5 The Contractor shall provide a current and updated Progress Schedule to the Architect with each Application for Payment. Failure to provide Schedule will be just cause for rejection of Application for Payment."

9.5 DECISIONS TO WITHHOLD CERTIFICATION

On projects where commissioning is included, the commissioning work as defined in the specifications must be complete prior to the issuance of substantial completion.

Add the following Subsections to 9.5.1:

.8 failure to provide a current Progress Schedule;
.9 a lien or attachment is filed;
.10 failure to comply with mandatory requirements for maintaining Record Documents.

9.6 PROGRESS PAYMENTS

9.61 Strike Section 9.6.1 in its entirety and replace with the following:

"9.6.1 After the Architect has approved and issued a Certificate for Payment, payment shall be made by the Owner within 30 days after Owner's receipt of the Certificate for Payment."

9.6.8 Strike "Provided the Owner has fulfilled its payment obligations under the Contract Documents," in the first sentence.

9.7 FAILURE OF PAYMENT

Strike Section 9.7 in its entirety and replace with the following:

"If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within fourteen days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within thirty days after the date established in the Contract Documents, the amount certified by the Architect, then the Contractor may, upon thirty 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

9.8.3 At the end of Section 9.8.3, add the following sentence:

"If the Architect is required to make more than 2 inspections of the same portion of work, the Contractor shall be responsible for all costs associated with subsequent inspections including but not limited to any Architect's fees."

9.8.5 Strike "shall" and insert "may" in the second sentence.

9.8.5 Insert "1/2 of the" after "make payment of" in the second sentence.

9.9 PARTIAL OCCUPANCY OR USE

9.9.1 Strike the first sentence and replace with the following (the remainder of the Section remains as written):

"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 authorized by public authorities having jurisdiction over the Project."

9.10.2 Strike "to remain in force after final payment is currently in effect" after "required by the Contract Documents" and replace with, "shall remain in force until final payment is completed" in the first sentence.

9.10.4.4 Strike "if permitted by the Contract Documents,"

ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

Add the following Sections:

10.1.1 Each Contractor shall develop a safety program in accordance with the Occupational Safety and Health Act of 1970. A copy of said plan shall be furnished to the Owner and Architect prior to the commencement of that Contractor's Work.

10.1.2 Each Contractor shall appoint a Safety Representative. Safety Representatives shall be someone who is on site on a full-time basis. If deemed necessary by the Owner or Architect, Contractor Safety meetings will be scheduled. The attendance of all Safety Representatives will be required. Minutes will be recorded of said meetings by the Contractor and will be distributed to all parties as well as posted in all job offices/trailers etc.

10.2 SAFETY OF PERSONS AND PROPERTY

Add the following Section:

10.2.4.1 As required in the Hazardous Chemical Act of June 1984, all vendors supplying any material that may be defined as hazardous must provide Material Safety Data Sheets for those products. Any chemical product should be considered hazardous if it has a caution warning on the label relating to a potential physical or health hazard, if it is known to be present in the workplace, and if employees may be exposed under normal conditions or in foreseeable emergency situations. Material Safety Data Sheets shall be provided directly to the Owner, along with the shipping slips that include those products.

10.2.5 Strike the second sentence in its entirety.

10.3 HAZARDOUS MATERIALS AND SUBSTANCES

10.3.3 Strike Section 10.3.3 in its entirety.

10.3.4 Insert “hazardous” in the last sentence after “handling of such”.

10.3.6 Strike Section 10.3.6 in its entirety.

ARTICLE 11: INSURANCE AND BONDS

11.1 CONTRACTOR’S INSURANCE AND BONDS

11.1.1 Strike “Owner” from the third sentence.

11.2 OWNER’S LIABILITY INSURANCE

Strike 11.2 in its entirety, except that in the case of school projects in which case Section 11.2 shall remain.

11.3 WAIVERS OF SUBROGATION

Delete Section 11.3 in its entirety

11.4 LOSS OF USE, BUSINESS INTERRUPTION, AND DELAY IN COMPLETION INSURANCE

Delete Section 11.4 in its entirety

ARTICLE 12: UNCOVERING AND CORRECTION OF WORK

12.2.2 AFTER SUBSTANTIAL COMPLETION

12.2.1.1 Strike all references to “one year” or “one-year” and replace with “two years”.

Add the following Section:

"12.2.2.1.1 At any time during the progress of the Work, or in any case where the nature of the defects will be such that it is not expedient to have corrected, the Owner, at its option, will have the right to deduct such sum, or sums, of money from the amount of the Contract as it considers justified to adjust the difference in value between the non-conforming work and that required under contract including any damage to the structure."

12.2.2.2 Strike "one-year" and replace with "two years".

12.2.2.3 Strike "one-year" and replace with "two years".

12.2.5 Strike "one-year" and replace with "two years".

ARTICLE 13: MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW

Strike the last sentence.

13.4 TESTS AND INSPECTIONS

13.4.1 Strike the last sentence and replace with the following:

"The Owner shall pay for tests, inspections, or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor."

13.5 NTEREST

Strike "the date payment is due at such rate as the parties may 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" and replace with "30 days of presentment of the authorized Certificate of Payment at the annual rate of 12% or 1% per month."

Insert the following Section:

"13.6 CONFLICTS WITH FEDERAL STATUTES OR REGULATIONS

13.6.1 If any provision, specifications or requirement of the Contract Documents conflict or is inconsistent with any statute, law or regulation of the government of the United State of America, the Contractor shall notify the Architect and Owner immediately upon discovery."

ARTICLE 14: TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

14.1.1.4 Insert ", upon the Contractors' request," after "furnish to the Contractor".

14.1.3 Strike "and profit on Work not executed, and" after "as well as reasonable overhead" and replace with ", profit, and reasonable"

14.3 SUSPENSION BY OWNER FOR CONVENIENCE

14.3.2 Strike “Adjustment of the Contract Sum shall include profit”.

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

14.4.3 Strike Section 14.4.3 in its entirety and replace with the following:

“In case of such termination for the Owner’s convenience, the Contractor shall be entitled to receive payment for Work executed, and reasonable costs incurred by reason of such termination along with reasonable overhead.”

ARTICLE 15: CLAIMS AND DISPUTES

15.1 CLAIMS

15.1.2 TIME LIMITS ON CLAIMS

Strike the last sentence.

15.1.3 NOTICE OF CLAIM

Strike all references to “21” and replace with “45”.

15.1.5 CLAIMS FOR ADDITIONAL COSTS

Strike the first sentence and replace with the following:

“Contractor shall not proceed to execute any portion of the Work that is subject to the Claim without prior approval of the costs or method of payment for the costs associated with the Claim as determined by the Architect and approved by the Owner.”

15.1.7 WAIVER OF CLAIMS FOR CONSEQUENTIAL DAMAGES

Strike Section 15.1.7 in its entirety.

15.2 INITIAL DECISION

15.2.1 Strike “and binding dispute resolution” in the fourth sentence and replace with “or any and all remedies at law or in equity”.

15.2.5 Strike Section 15.2.5 in its entirety and replace with the following:

“The Architect will approve or reject Claims by written decision, which shall state the reasons therefore and shall notify the parties of any change in the Contract Sum or Contract Time or both. The approval or rejection of a Claim by the Architect shall be subject to mediation and any or all remedies at law or in equity.”

15.2.6 Strike Section 15.2.6 and its sub-Sections in their entirety.

15.3 MEDIATION

15.3.1 Strike “binding dispute resolution” and replace with “any or all remedies at law or in equity”.

15.3.2 Strike “, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedure in effect on the date of the Agreement,” in the first sentence.

15.3.2 Strike all references to “binding dispute resolution” and replace with “any or all remedies at law and in equity”.

15.3.3 Strike Section 15.3.3 in its entirety.

15.4 ARBITRATION

Strike Section 15.4 and its Subsections in their entirety.

END OF SECTION

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SECTION 00 73 43
WAGE RATE REQUIREMENTS

For renovation and new construction projects whose costs exceed the thresholds contained in Delaware Code, Title 29, Section 6960, the minimum wage rates for various classes of laborers and mechanics shall be as determined by the Department of Labor, Division of Industrial Affairs of the State of Delaware.

SEE ATTACHED WAGE DETERMINATION SCHEDULE DATED: March 13, 2026

END OF SECTION

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SECTION 00 73 46
WAGE RATE DETERMINATION SCHEDULE

STATE OF DELAWARE
DEPARTMENT OF LABOR
DIVISION OF INDUSTRIAL AFFAIRS
OFFICE OF LABOR LAW ENFORCEMENT
PHONE: (302) 318-2769

Mailing Address:
252 Chapman Road
Suite 210
Newark, DE 19702

Located at:
252 Chapman Road
Suite 210
Newark, DE 19702

PREVAILING WAGES FOR **BUILDING CONSTRUCTION** EFFECTIVE MARCH 13, 2026

CLASSIFICATION	NEW CASTLE	KENT	SUSSEX
ASBESTOS WORKERS	30.70	37.78	55.01
BOILERMAKERS	91.87	46.61	68.52
BRICKLAYERS	68.29	68.29	68.29
CARPENTERS	64.06	64.06	52.30
CEMENT FINISHERS	96.91	68.92	53.44
ELECTRICAL LINE WORKERS	61.02	52.34	39.90
ELECTRICIANS	86.87	86.87	86.87
ELEVATOR CONSTRUCTORS	121.73	86.57	109.37
GLAZIERS	88.42	88.42	76.04
INSULATORS	71.54	71.54	71.54
IRON WORKERS	79.33	79.33	79.33
LABORERS	59.65	59.65	59.65
MILLWRIGHTS	91.00	91.00	73.10
PAINTERS	61.53	61.53	61.53
PILEDRIVERS	93.37	52.83	42.72
PLASTERERS	40.06	40.06	29.69
PLUMBERS/PIPEFITTERS/STEAMFITTERS	82.05	85.29	78.26
POWER EQUIPMENT OPERATORS	85.29	85.29	85.29
ROOFERS-COMPOSITION	36.41	31.28	33.64
ROOFERS-SHINGLE/SLATE/TILE	24.68	29.36	23.08
SHEET METAL WORKERS	87.84	87.84	87.84
SOFT FLOOR LAYERS	63.69	63.69	50.43
SPRINKLER FITTERS	77.63	77.63	77.63
TERRAZZO/MARBLE/TILE FNRS	73.75	73.75	84.10
TERRAZZO/MARBLE/TILE STRS	81.93	81.93	93.27
TRUCK DRIVERS	58.41	36.83	28.66

CERTIFIED: 8/5/2026 BY: Salena Crosdale /Re
ADMINISTRATOR, OFFICE OF LABOR LAW ENFORCEMENT

NOTE: THESE RATES ARE PROMULGATED AND ENFORCED PURSUANT TO THE PREVAILING WAGE REGULATIONS ADOPTED BY THE DEPARTMENT OF LABOR ON APRIL 3, 1952.

CLASSIFICATIONS OF WORKERS ARE DETERMINED BY THE DEPARTMENT OF LABOR. FOR ASSISTANCE IN CLASSIFYING WORKERS, OR FOR A COPY OF THE REGULATIONS OR CLASSIFICATIONS, PHONE (302) 318-2769.

NON-REGISTERED APPRENTICES MUST BE PAID THE MECHANIC'S RATE.

PROJECT: MJ1002000085 Richardson and Robbins Building - R and R Restroom Renovation, Kent County

END OF SECTION

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SECTION 00 81 13
GENERAL REQUIREMENTS

TABLE OF ARTICLES

1. GENERAL

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11. INSURANCE AND BONDS

12. UNCOVERING AND CORRECTION OF WORK

13. MISCELLANEOUS PROVISIONS

ARTICLE 2: OWNER

(NO ADDITIONAL GENERAL REQUIREMENTS – SEE SUPPLEMENTARY GENERAL CONDITIONS)

ARTICLE 3: CONTRACTOR

3.1 Schedule of Values: The successful Bidder shall within twenty (20) days after receiving notice to proceed with the work, furnish to the Owner a complete schedule of values on the various items comprising the work.

3.2 Subcontracts: Upon approval of Subcontractors, the Contractor shall award their Subcontracts as soon as possible after the signing of their own contract and see that all material, their own and those of their Subcontractors, are promptly ordered so that the work will not be delayed by failure of materials to arrive on time.

3.3 Before commencing any work or construction, the General Contractor is to consult with the Owner as to matters in connection with access to the site and the allocation of Ground Areas for the various features of hauling, storage, etc.

3.4 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, unless the Contract Documents give other specific instructions.

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

3.6 The Contractor warrants to the Owner that materials and equipment furnished will be new and of good quality, unless otherwise permitted, and that the work will be free from defects and in conformance with the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved, may be considered defective. If required by the Owner, the Contractor shall furnish evidence as to the kind and quality of materials and equipment provided.

3.7 Unless otherwise provided, the Contractor shall pay all sales, consumer, use and other similar taxes, and shall secure and pay for required permits, fees, licenses, and inspections necessary for proper execution of the Work.

3.8 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on performance of the Work. The Contractor shall promptly notify the Owner if the Drawings and Specifications are observed to be at variance therewith.

3.9 The Contractor shall be responsible to the Owner for the acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under contract with the Contractor.

3.10 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove from and about the Project all waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials. The Contractor shall be responsible for returning all damaged areas to their original conditions.

3.11 STATE LICENSE AND TAX REQUIREMENTS

3.11.1 Each Contractor and Subcontractor shall be licensed to do business in the State of Delaware and shall pay all fees and taxes due under State laws. In conformance with Section 2503, Chapter 25, Title 30, Delaware Code, "the Contractor shall furnish the Delaware Department of Finance within ten (10) days after entering into any contract with a contractor or subcontractor not a resident of this State, a statement of total value of such contract or contracts together with the names and addresses of the contracting parties."

3.12 The Contractor shall comply with all requirements set forth in Section 6962, Chapter 69, Title 29 of the Delaware Code.

3.13 During the contract Work, the Contractor and each Subcontractor, shall implement an Employee Drug Testing Program in accordance with OMB Regulation 4104 - "Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on "Large Public Works Projects". "Large Public Works" is based upon the current threshold required for bidding Public Works as set by the Purchasing and Contracting Advisory Council.

ARTICLE 4: ADMINISTRATION OF THE CONTRACT

4.1 CONTRACT SURETY

4.1.1 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

4.1.2 All bonds will be required as follows unless specifically waived elsewhere in the Bidding Documents.

4.1.3 Contents of Performance Bonds – The bond shall be in the form approved by the Office of Management and Budget. The bond shall be conditioned upon the faithful compliance and performance by the successful bidder of each and every term and condition of the contract and the proposal, plans, specifications, and bid documents thereof. Each term and condition shall be met at the time and in the manner prescribed by the Contract, Bid documents and the specifications, including the payment in full to every person furnishing materiel or performing labor in the performance of the Contract, of all sums of money due the person for such labor and materiel. (The bond shall also contain the successful bidder's guarantee to indemnify and save harmless the State and the agency from all costs, damages and expenses growing out of or by reason of the Contract in accordance with the Contract.)

4.1.4 Invoking a Performance Bond – The agency may, when it considers that the interest of the State so requires, cause judgement to be confessed upon the bond.

4.1.5 Within twenty (20) days after the date of notice of award of contract, the Bidder to whom the award is made shall furnish a Performance Bond and Labor and Material Payment

Bond, each equal to the full amount of the Contract price to guarantee the faithful performance of all terms, covenants and conditions of the same. The bonds are to be issued by an acceptable Bonding Company licensed to do business in the State of Delaware and shall be issued in duplicate.

4.1.6 Performance and Payment Bonds shall be maintained in full force (warranty bond) for a period of two (2) years after the date of the Certificate for Final Payment. The Performance Bond shall guarantee the satisfactory completion of the Project and that the Contractor will make good any faults or defects in his work which may develop during the period of said guarantees as a result of improper or defective workmanship, material or apparatus, whether furnished by themselves or their Sub-Contractors. The Payment Bond shall guarantee that the Contractor shall pay in full all persons, firms or corporations who furnish labor or material or both labor and material for, or on account of, the work included herein. The bonds shall be paid for by this Contractor. The Owner shall have the right to demand that the proof parties signing the bonds are duly authorized to do so.

4.2 FAILURE TO COMPLY WITH CONTRACT

4.2.1 If any firm entering into a contract with the State, or Agency that neglects or refuses to perform or fails to comply with the terms thereof, the Agency which signed the Contract may terminate the Contract and proceed to award a new contract in accordance with this Chapter 69, Title 29 of the Delaware Code or may require the Surety on the Performance Bond to complete the Contract in accordance with the terms of the Performance Bond. Nothing herein shall preclude the Agency from pursing additional remedies as otherwise provided by law.

4.3 CONTRACT INSURANCE AND CONTRACT LIABILITY

4.3.1 The Owner shall have the right to audit the books and records of a Contractor or any Subcontractor under any Contract or Subcontract to the extent that the books and records relate to the performance of the Contract or Subcontract.

4.3.2 Said books and records shall be maintained by the Contractor for a period of seven (7) years from the date of final payment under the Prime Contract and by the Subcontractor for a period of seven (7) years from the date of final payment under the Subcontract.

ARTICLE 5: SUBCONTRACTORS

5.1 SUBCONTRACTING REQUIREMENTS

5.1.1 All contracts for the construction, reconstruction, alteration or repair of any public building (not a road, street or highway) shall be subject to the following provisions:

1. A contract shall be awarded only to a Bidder whose Bid is accompanied by a statement containing, for each Subcontractor category, the name and address (city or town and State only – street number and P.O. Box addresses not required) of the subcontractor whose services the Bidder intends to use in performing the Work and providing the material for such Subcontractor category.

2, A Bid will not be accepted, nor will an award of any Contract be made to any Bidder which, as the Prime Contractor, has listed itself as the Subcontractor for any Subcontractor unless:

A. It has been established to the satisfaction of the awarding Agency that the Bidder has customarily performed the specialty work of such Subcontractor category by artisans regularly employed by the Bidder's firm;

B. That the Bidder is duly licensed by the State to engage in such specialty work, if the State requires licenses; and

C. That the Bidder is recognized in the industry as a bona fide Subcontractor or Contractor in such specialty work and Subcontractor category.

5.1.2 The decision of the awarding Agency as to whether a Bidder who list itself as the Subcontractor for a Subcontractor category shall be final and binding upon all Bidders, and no action of any nature shall lie against any awarding agency or its employees or officers because of its decision in this regard.

5.1.3 After such a Contract has been awarded, the successful Bidder shall not substitute another Subcontractor for any Subcontractor whose name was set forth in the statement which accompanied the Bid without the written consent of the awarding Agency.

5.1.4 No Agency shall consent to any substitution of Subcontractors unless the Agency is satisfied that the Subcontractor whose name is on the Bidders accompanying statement:

A. Is unqualified to perform the work required;

B. Has failed to execute a timely reasonable Subcontract;

C. Has defaulted in the performance on the portion of the work covered by the Subcontract; or

D. Is no longer engaged in such business.

5.1.5 Should a Bidder be awarded a contract, such successful Bidder shall provide to the agency the taxpayer identification license numbers of such subcontractors. Such numbers shall be provided on the later of the date on which such subcontractor is required to be identified or the time the contract is executed. The successful Bidder shall provide to the agency to which it is contracting, within 30 days of entering into such public works contract, copies of all Delaware Business licenses of subcontractors and/or independent contractors that will perform work for such public works contract. However, if a subcontractor or independent contractor is hired or contracted more than 20 days after the Bidder entered the public works contract the Delaware Business license of such subcontractor or independent contractor shall be provided to the agency within 10 days of being contracted or hired.

5.1.6 The Contractor may employ additional Subcontractors on the jobsite only after submitting a copy of the Subcontractor's Employee Drug Testing Program to the Owner for approval. A Contractor or Subcontractor shall not commence work until the Owner has concluded its review and determined that the submitted Employee Drug Testing Program complies with OMB Regulation 4104.

5.2 PENALTY FOR SUBSTITUTION OF SUBCONTRACTORS

5.2.1 Should the Contractor fail to utilize any or all of the Subcontractors in the Contractor's Bid statement in the performance of the Work on the public bidding, the Contractor shall be penalized in the amount of (project specific amount*). The Agency may determine to deduct payments of the penalty from the Contractor or have the amount paid directly to the Agency. Any penalty amount assessed against the Contractor may be remitted or refunded, in whole or in part, by the Agency awarding the Contract, only if it is established to the satisfaction of the Agency that the Subcontractor in question has defaulted or is no longer engaged in such business. No claim for the remission or refund of any penalty shall be granted unless an application is filed within one year after the liability of the successful Bidder accrues. All penalty amounts assessed and not refunded or remitted to the contractor shall be reverted to the State.

*one (1) percent of contract amount not to exceed $10,000

5.3 ASBESTOS ABATEMENT

5.3.1 The selection of any Contractor to perform asbestos abatement for State-funded projects shall be approved by the Office of Management and Budget, Division of Facilities Management pursuant to Chapter 78 of Title 16.

5.4 STANDARDS OF CONSTRUCTION FOR THE PROTECTION OF THE PHYSICALLY HANDICAPPED

5.4.1 All Contracts shall conform with the standard established by the Delaware Architectural Accessibility Board unless otherwise exempted by the Board.

5.5 CONTRACT PERFORMANCE

5.5.1 Any firm entering into a Public Works Contract that neglects or refuses to perform or fails to comply with its terms, the Agency may terminate the Contract and proceed to award a new Contract or may require the Surety on the Performance Bond to complete the Contract in accordance with the terms of the Performance Bond.

ARTICLE 6: CONSTRUCTION BY OWNER OR SEPARATE CONTRACTORS

6.1 The Owner reserves the right to simultaneously perform other construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other Projects at the same site.

6.2 The Contractor shall afford the Owner and other Contractors reasonable opportunity for access and storage of materials and equipment, and for the performance of their activities,

and shall connect and coordinate their activities with other forces as required by the Contract Documents.

ARTICLE 7: CHANGES IN THE WORK

7.1 The Owner, without invalidating the Contract, may order changes in the Work consisting of Additions, Deletions, Modifications or Substitutions, with the Contract Sum and Contract completion date being adjusted accordingly. Such changes in the Work shall be authorized by written Change Order signed by the Professional, as the duly authorized agent, the Contractor and the Owner.

7.2 The Contract Sum and Contract Completion Date shall be adjusted only by a fully executed Change Order.

7.3 The additional cost, or credit to the Owner resulting from a change in the Work shall be by mutual agreement of the Owner, Contractor and the Architect. In all cases, this cost or credit shall be based on the 'DPE' wages required and the "invoice price" of the materials/equipment needed.

7.3.1 "DPE" shall be defined to mean "direct personnel expense". Direct payroll expense includes prevailing wage rates plus a maximum multiplier of 1.35 times DPE. For example, if the prevailing wage rate is $50/hour, the DPE would be $67.50/hour (50 x 1.35).

7.3.2 "Invoice price" of materials/equipment shall be defined to mean the actual cost of materials and/or equipment that is paid by the Contractor, (or subcontractor), to a material distributor, direct factory vendor, store, material provider, or equipment leasing entity. Rates for equipment that is leased and/or owned by the Contractor or subcontractor(s) shall not exceed those listed in the latest version of the "Means Building Construction Cost Data" publication.

7.3.3 In addition to the above:

7.3.3.1 The General Contractor is allowed a fifteen percent (15%) markup for overhead and profit for additional work performed by the General Contractor's own forces.

7.3.3.2 For additional subcontractor work, the Subcontractor is allowed a fifteen (15) percent overhead and profit on change order work above and beyond the direct costs stated previously. To this amount, the General Contractor will be allowed a mark-up not exceeding seven- and one-half percent (7.5%) on the subcontractor's work.

7.3.3.3 Where the Third Tier Contractor is going to be completing the additional work, the Third-Tier contractor will be allowed a markup of fifteen percent (15%) overhead and profit on changes order work above and beyond the direct costs stated previously. To this amount, the Subcontractor will be allowed a markup not to exceed seven and one-half percent (7.5%) on the Third-Tier Contractor's work and the General Contractor will be allowed a markup not to exceed seven and one-half percent (7.5%) of the amount of the Subcontractor's markup.

7.3.3.4 No additional costs shall be allowed for changes related to the Contractor's onsite superintendent/staff, or project manager, unless a change in the work changes the project duration and is identified by the CPM schedule. There will be no other costs associated with the change order.

7.3.3.5 These markups shall include all costs including, but not limited to: overhead, profit, bonds, insurance, supervision, etc.

ARTICLE 8: TIME

8.1 Time limits, if any, are as stated in the Project Manual. By executing the Agreement, the Contractor confirms that the stipulated limits are reasonable, and that the Work will be completed within the anticipated time frame.

8.2 If progress of the Work is delayed at any time by changes ordered by the Owner, by labor disputes, fire, unusual delay in deliveries, abnormal adverse weather conditions, unavoidable casualties or other causes beyond the Contractor's control, the Contract Time shall be extended for such reasonable time as the Owner may determine.

8.3 Any extension of time beyond the date fixed for completion of the construction and acceptance of any part of the Work called for by the Contract, or the occupancy of the building by the Owner, in whole or in part, previous to the completion shall not be deemed a waiver by the Owner of his right to annul or terminate the Contract for abandonment or delay in the matter provided for, nor relieve the Contractor of full responsibility

8.4 SUSPENSION AND DEBARMENT

8.4.1 Per Section 6962(d)(14), Title 29, Delaware Code, "Any Contractor who fails to perform a public works contract or complete a public works project within the time schedule established by the Agency in the Invitation To Bid, may be subject to Suspension or Debarment for one or more of the following reasons: a) failure to supply the adequate labor supply ratio for the project; b) inadequate financial resources; or, c) poor performance on the Project."

8.4.2 "Upon such failure for any of the above stated reasons, the Agency that contracted for the public works project may petition the Director of the Office of Management and Budget for Suspension or Debarment of the Contractor. The Agency shall send a copy of the petition to the Contractor within three (3) working days of filing with the Director. If the Director concludes that the petition has merit, the Director shall schedule and hold a hearing to determine whether to suspend the Contractor, debar the Contractor or deny the petition. The Agency shall have the burden of proving, by a preponderance of the evidence, that the Contractor failed to perform or complete the public works project within the time schedule established by the Agency and failed to do so for one or more of the following reasons: a) failure to supply the adequate labor supply ratio for the project; b) inadequate financial resources; or, c) poor performance on the project. Upon a finding in favor of the Agency, the Director may suspend a Contractor from Bidding on any project funded, in whole or in part, with public funds for up to 1 year for a first offense, up to 3 years for a second offense and permanently debar the Contractor for a third offense. The Director shall issue a written decision and shall send a copy to the Contractor and the

Agency. Such decision may be appealed to the Superior Court within thirty (30) days for a review on the record."

8.5 RETAINAGE

8.5.1 Per Section 6962(d)(5) a.3, Title 29, Delaware Code: The Agency may at the beginning of each public works project establish a time schedule for the completion of the project. If the project is delayed beyond the completion date due to the Contractor's failure to meet their responsibilities, the Agency may forfeit, at its discretion, all or part of the Contractor's retainage.

8.5.2 This forfeiture of retainage also applies to the timely completion of the punch list. A punch list will only be prepared upon the mutual agreement of the Owner, Architect and Contractor. Once the punch list is prepared, all three parties will, by mutual agreement, establish a schedule for its completion. Should completion of the punch list be delayed beyond the established date due to the Contractor's failure to meet their responsibilities, the Agency may hold permanently, at its discretion, all or part of the Contractor's retainage.

ARTICLE 9: PAYMENTS AND COMPLETION

9.1 APPLICATION FOR PAYMENT

9.1.1 Applications for payment shall be made upon AIA Document G702. There will be a five percent (5%) retainage on all Contractor's monthly invoices until completion of the project. This retainage may become payable upon receipt of all required closeout documentation, provided all other requirements of the Contract Documents have been met.

9.1.2 A date will be fixed for the taking of the monthly account of work done. Upon receipt of Contractor's itemized application for payment, such application will be audited, modified, if found necessary, and approved for the amount. Statement shall be submitted to the Owner.

9.1.3 Section 6516, Title 29 of the Delaware Code annualized interest is not to exceed 12% per annum beginning thirty (30) days after the "presentment" (as opposed to the date) of the invoice.

9.2 PARTIAL PAYMENTS

9.2.1 Any public works Contract executed by any Agency may provide for partial payments at the option of the Owner with respect to materials placed along or upon the sites or stored at secured locations, which are suitable for use in the performance of the contract.

9.2.2 When approved by the agency, partial payment may include the values of tested and acceptable materials of a nonperishable or noncontaminative nature which have been produced or furnished for incorporation as a permanent part of the work yet to be completed, provided acceptable provisions have been made for storage.

9.2.2.1 Any allowance made for materials on hand will not exceed the delivered cost of the materials as verified by invoices furnished by the Contractor, nor will it exceed the contract bid price for the material complete in place.

9.2.3 If requested by the Agency, receipted bills from all Contractors, Subcontractors, and material, men, etc., for the previous payment must accompany each application for payment. Following such a request, no payment will be made until these receipted bills have been received by the Owner.

9.3 SUBSTANTIAL COMPLETION

9.3.1 When the building has been made suitable for occupancy, but still requires small items of miscellaneous work, the Owner will determine the date when the project has been substantially completed.

9.3.2 If, after the Work has been substantially completed, full completion thereof is materially delayed through no fault of the Contractor, and without terminating the Contract, the Owner may make payment of the balance due for the portion of the Work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment that it shall not constitute a waiver of claims.

9.3.3 On projects where commissioning is included, the commissioning work as defined in the specifications must be complete prior to the issuance of substantial completion.

9.4 FINAL PAYMENT

9.4.1 Final payment, including the five percent (5%) retainage if determined appropriate, shall be made within thirty (30) days after the Work is fully completed and the Contract fully performed and provided that the Contractor has submitted the following closeout documentation (in addition to any other documentation required elsewhere in the Contract Documents):

9.4.1.1 Evidence satisfactory to the Owner that all payrolls, material bills, and other indebtedness connected with the work have been paid,

9.4.1.2 An acceptable RELEASE OF LIENS,

9.4.1.3 Copies of all applicable warranties,

9.4.1.4 As-built drawings,

9.4.1.5 Operations and Maintenance Manuals,

9.4.1.6 Instruction Manuals,

9.4.1.7 Consent of Surety to final payment.

9.4.1.8 The Owner reserves the right to retain payments, or parts thereof, for its protection until the foregoing conditions have been complied with, defective work corrected and all unsatisfactory conditions remedied.

ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

10.1 The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take all reasonable precautions to prevent damage, injury or loss to: workers, persons nearby who may be affected, the Work, materials and equipment to be incorporated, and existing property at the site or adjacent thereto. The Contractor shall give notices and comply with applicable laws ordinances, rules regulations, and lawful orders of public authorities bearing on the safety of persons and property and their protection from injury, damage, or loss. The Contractor shall promptly remedy damage and loss to property at the site caused in whole or in part by the Contractor, a Subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable.

10.2 The Contractor shall notify the Owner in the event any previously unknown hazardous material such as PCBs, asbestos, etc. is encountered on the project. The Owner will arrange with a qualified specialist for the identification, testing, removal, handling and protection against exposure or environmental pollution, to comply with applicable regulation laws and ordinances. The Contractor and Architect will not be required to participate in or to perform this operation. Upon completion of this work, the Owner will notify the Contractor and Architect in writing the area has been cleared and approved by the authorities in order for the work to proceed. The Contractor shall attach documentation from the authorities of said approval to the closeout documents to be submitted at the end of the project.

10.2.1 Any activities with the potential to disturb lead-based materials should be performed by the Contractor in accordance with OSHA regulations pertaining to Lead in Construction, 29 CFR 1926.62, Lead.

10.2.1.1 The Contractor shall notify the Owner in the event they encounter previously unknown material that they suspect may contain “lead”. The Owner will arrange with a qualified specialist for identification and testing and advise the Contractor of the results. In the case that testing identifies potential lead-based materials, the contractor shall continue performance of the work that has the potential to disturb associated in accordance with OSHA regulations pertaining to Lead in Construction, 29 CFR 1926.62, Lead.

10.3 As required in the Hazardous Chemical Information Act of June 1984, all vendors supplying any materials that may be defined as hazardous must provide Material Safety Data Sheets for those products. Any chemical product should be considered hazardous if it has a warning caution on the label relating to a potential physical or health hazard, if it is known to be present in the workplace, and if employees may be exposed under normal conditions or in any foreseeable emergency situation. Material Safety Data Sheets must be provided directly to the Owner along with the shipping slips that include those products.

10.4 The Contractor shall certify to the Owner that materials incorporated into the Work are free of all asbestos. This certification may be in the form of Material Safety Data Sheet (MSDS) provided by the product manufacturer for the materials used in construction, as specified or as provided by the Contractor.

ARTICLE 11: INSURANCE AND BONDS

11.1 The Contractor shall carry all insurance required by law, such as Unemployment Insurance, etc. The Contractor shall carry such insurance coverage as they desire on their own property such as a field office, storage sheds or other structures erected upon the project site that belong to them and for their own use. The Subcontractors involved with this project shall carry whatever insurance protection they consider necessary to cover the loss of any of their personal property, etc.

11.2 Upon being awarded the Contract, the Contractor shall obtain a minimum of two (2) copies of all required insurance certificates called for herein and submit one (1) copy of each certificate, to the Owner, within 20 days of contract award.

11.3 Bodily Injury Liability and Property Damage Liability Insurance shall, in addition to the coverage included herein, include coverage for injury to or destruction of any property arising out of the collapse of or structural injury to any building or structure due to demolition work and evidence of these coverages shall be filed with and approved by the Owner.

11.4 The Contractor's Property Damage Liability Insurance shall, in addition to the coverage noted herein, include coverage on all real and personal property in their care, custody and control damaged in any way by the Contractor or their Subcontractors during the entire construction period on this project.

11.5 Builders Risk (including Standard Extended Coverage Insurance) on the existing building during the entire construction period, may be provided by the Contractor under this contract. The Owner shall insure the existing building and all of its contents and all this new alteration work under this contract during entire construction period for the full insurable value of the entire work at the site. Note, however, that the Contractor and their Subcontractors shall be responsible for insuring building materials (installed and stored) and their tools and equipment whenever in use on the project, against fire damage, theft, vandalism, etc.

11.6 Certificates of the insurance company or companies stating the amount and type of coverage, terms of policies, etc., shall be furnished to the Owner, within 20 days of contract award.

11.7 The Contractor shall, at their own expense, (in addition to the above) carry the following forms of insurance:

11.7.1 <u>Contractor's Contractual Liability Insurance</u>

Minimum coverage to be:

Bodily Injury	$1,000,000	for each occurrence
	$3,000,000	aggregate
Property Damage	$1,000,000	for each occurrence
	$3,000,000	aggregate

11.7.2 Contractor's Protective Liability Insurance

Minimum coverage to be:

Bodily Injury	$1,000,000	for each occurrence
	$3,000,000	aggregate
Property Damage	$1,000,000	for each occurrence
	$3,000,000	aggregate

11.7.3 Automobile Liability Insurance

Minimum coverage to be:

Bodily Injury	$1,000,000	for each person
	$1,000,000	for each occurrence
Property Damage	$500,000	per accident

11.7.4 Prime Contractor's and Subcontractors' policies shall include contingent and contractual liability coverage in the same minimum amounts as 11.7.1 above.

11.7.5 Workmen's Compensation (including Employer's Liability):

11.7.5.1 Minimum Limit on employer's liability to be as required by law.

11.7.5.2 Minimum Limit for all employees working at one site.

11.7.6 Certificates of Insurance must be filed with the Owner guaranteeing fifteen (15) days prior notice of cancellation, non-renewal, or any change in coverages and limits of liability shown as included on certificates.

11.7.7 Social Security Liability

11.7.7.1 With respect to all persons at any time employed by or on the payroll of the Contractor or performing any work for or on their behalf, or in connection with or arising out of the Contractor's business, the Contractor shall accept full and exclusive liability for the payment of any and all contributions or taxes or unemployment insurance, or old age retirement benefits, pensions or annuities now or hereafter imposed by the Government of the United States and the State or political subdivision thereof, whether the same be measured by wages, salaries or other remuneration paid to such persons or otherwise.

11.7.7.2 Upon request, the Contractor shall furnish Owner such information on payrolls or employment records as may be necessary to enable it to fully comply with the law imposing the aforesaid contributions or taxes.

11.7.7.3 If the Owner is required by law to and does pay any and/or all of the aforesaid contributions or taxes, the Contractor shall forthwith reimburse the Owner for the entire amount so paid by the Owner.

ARTICLE 12: UNCOVERING AND CORRECTION OF WORK

12.1 The Contractor shall promptly correct Work rejected by the Owner or failing to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed, and shall correct any Work found to be not in accordance with the requirements of the Contract Documents within a period of two years from the date of Substantial Completion, or by terms of an applicable special warranty required by the Contract Documents. The provisions of this Article apply to work done by Subcontractors as well as to Work done by direct employees of the Contractor.

12.2 At any time during the progress of the work, or in any case where the nature of the defects shall be such that it is not expedient to have them corrected, the Owner, at their option, shall have the right to deduct such sum, or sums, of money from the amount of the contract as they consider justified to adjust the difference in value between the defective work and that required under contract including any damage to the structure.

ARTICLE 13: MISCELLANEOUS PROVISIONS

13.1 CUTTING AND PATCHING

13.1.1 The Contractor shall be responsible for all cutting and patching. The Contractor shall coordinate the work of the various trades involved.

13.2 DIMENSIONS

13.2.1 All dimensions shown shall be verified by the Contractor by actual measurements at the project site. Any discrepancies between the drawings and specifications and the existing conditions shall be referred to the Owner for adjustment before any work affected thereby has been performed.

13.3 LABORATORY TESTS

13.3.1 Any specified laboratory tests of material and finished articles to be incorporated in the work shall be made by bureaus, laboratories or agencies approved by the Owner and reports of such tests shall be submitted to the Owner. The cost of the testing shall be paid for by the Contractor.

13.3.2 The Contractor shall furnish all sample materials required for these tests and shall deliver same without charge to the testing laboratory or other designated agency when and where directed by the Owner.

13.4 ARCHAEOLOGICAL EVIDENCE

13.4.1 Whenever, in the course of construction, any archaeological evidence is encountered on the surface or below the surface of the ground, the Contractor shall notify the authorities of the State Historic Preservation Office and suspend work in the immediate area for a reasonable time to permit those authorities, or persons designated by them, to examine the area and ensure the proper removal of the archaeological evidence for suitable preservation by the Division of Historical and Cultural Affairs.

13.5 GLASS REPLACEMENT AND CLEANING

13.5.1 The General Contractor shall replace without expense to the Owner all glass broken during the construction of the project. If job conditions warrant, at completion of the job the General Contractor shall have all glass cleaned and polished.

13.6 WARRANTY

13.6.1 For a period of two (2) years from the date of substantial completion, as evidenced by the date of final acceptance of the work, the contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect of equipment, material or workmanship performed by the contractor or any of his subcontractors or suppliers. However, manufacturer's warranties and guarantees, if for a period longer than two (2) years, shall take precedence over the above warranties. The contractor shall remedy, at his own expense, any such failure to conform or any such defect. The protection of this warranty shall be included in the Contractor's Performance Bond.

ARTICLE 14: TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 If the Contractor defaults or persistently fails or neglects to carry out the Work in accordance with the Contract Documents or fails to perform a provision of the Contract, the Owner, after seven days written notice to the Contractor, may make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor. Alternatively, at the Owner's option, and the Owner may terminate the Contract and take possession of the site and of all materials, equipment, tools, and machinery therein owned by the Contractor and may finish the Work by whatever method the Owner may deem expedient. If the costs of finishing the Work exceed any unpaid compensation due the Contractor, the Contractor shall pay the difference to the Owner.

14.2 “If the continuation of this Agreement is contingent upon the appropriation of adequate state, or federal funds, this Agreement may be terminated on the date beginning on the first fiscal year for which funds are not appropriated or at the exhaustion of the appropriation. The Owner may terminate this Agreement by providing written notice to the parties of such non-appropriation. All payment obligations of the Owner will cease upon the date of termination. Notwithstanding the foregoing, the Owner agrees that it will use its best efforts to obtain approval of necessary funds to continue the Agreement by taking appropriate action to request adequate funds to continue the Agreement.”

END OF SECTION

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EMPLOYEE DRUG TESTING REPORT FORM

Period Ending: _____ .

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors who work on Large Public Works Contracts funded all or in part with public funds maintain testing data that includes but is not limited to the data elements below.

Project Number: _____ .

Project Name: _____ .

Contractor/Subcontractor Name: _____ .

Contractor/Subcontractor Address: _____ .
_____ .
_____ .

Number of employees who worked on the jobsite during the report period: _____ .

Number of employees subject to random testing during the report period: _____ .

Number of Negative Results _____ Number of Positive Results _____ .

Action taken on employee(s) in response to a failed or positive random test:
_____ .
_____ .
_____ .

Date: _____.

This form is not required to be submitted to the Owner. Included as a reference to show information required to be maintained by the Contractor. The Owner shall have the right to periodically audit all Contractor and Subcontractor test results at the Contractor's or Subcontractor's offices (or by other means to make the data available for inspection by the Owner).

EMPLOYEE DRUG TESTING
REPORT OF POSITIVE RESULTS

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors who work on Large Public Works Contracts funded all or in part with public funds to notify the Owner in writing of a positive random drug test.

Project Number: _____ .

Project Name: _____ .

Contractor/Subcontractor Name: _____ .

Contractor/Subcontractor Address: _____ .
_____ .
_____ .

Name of employee with positive test result: _____ .

Last 4 digits of employee SSN: _____.

Date test results received: _____ .

Action taken on employee in response to a positive test result:
_____ .
_____ .
_____ .

Authorized Representative of Contractor/Subcontractor: _____ .
(typed or printed)

Authorized Representative of Contractor/Subcontractor: _____ .
(signature)

Date: _____ .

This form shall be sent by mail to the Owner within 24 hours of receipt of test results.

Enclose this test results form in a sealed envelope with the notation "Drug Testing Form – DO NOT OPEN" on the face thereof and place in a separate mailing envelope.

R&R Restroom Renovation
Richardson & Robbins Building
MJ1002000085

AFFIDAVIT OF
CRAFT TRAINING COMPLIANCE

We, the contractor, hereby certify that we and all applicable subcontractors will abide by the contractor and subcontractor craft training requirements outlined below for the duration of the contract. Craft training must be provided by a contractor and/or subcontractor for each craft on a project for which there are Delaware Department of Labor approved and registered training programs or, if the contractor and/or subcontractor meets the requirements under Title 29, Chapter 69, Section 6960A.(b)(1)c.1.-3., payment may be made in accordance with Title 29, Chapter 69, Section 6960A.(b)(1)d. A list of crafts for which there are approved and registered training programs is maintained by the Delaware Department of Labor and can be found at: https://laborfiles.delaware.gov/main/det/apprenticeship/DE%20Craft%20Training%20Occupation%20List%20Effective%20March%201%202022.pdf. If you have questions regarding craft training programs, please submit all questions in writing to the Delaware Department of Labor at: apprenticeship@delaware.gov. ***This Affidavit of Craft Training Compliance must be submitted prior to contract execution***.

In accordance with Title 29, Chapter 69, Section 6960A.(a)(1), a contract relating to a public works project under § 6962 of Title 29 must include a craft training program for each craft in the project if at the time the contractor executes a public works contract, all of the following apply:

a. A project meets the prevailing wage requirement under Section 6960 of Title 29.
b. The contractor employs 10 or more total employees.
c. The project is not a federal highway project, except for the project under Section 6962(c)(11) of Title 29.
d. There is an apprenticeship program for a craft in the project on the list of crafts under Section 204(b)(2) of Title 19.

Pursuant to Title 29, Chapter 69, Section 6960A.(a)(2), ***a contractor must commit that all subcontractors provide craft training*** if paragraph (a)(1) of this section applies to the subcontractor. Failure to provide required craft training or payment on the project may subject the successful contractor and/or subcontractor(s) to penalties as outlined in Title 29, Chapter 69, Section 6960A.(d)(1)-(3).

Craft(s): _____ .

Contractor Name: _____ .

Contractor Address: _____ .

_____ .

_____ .

Contractor Program Registration Number(s) _____ .

On this line also indicate whether DE, Other State (identify) or US Registration Number

Or

☐ **A payment has been made in the amount established under Section 204(b)(2)b.2. of Title 19, for the craft into the Delaware Department of Labor's Apprenticeship and Training Fund.**

Or

☐ **Craft Training requirements are not applicable because:**

_____ .

Authorized Representative (typed or printed): _____ .

Authorized Representative (signature): _____ .

Title: _____ .

State of Delaware)
) ss:
County of _____ .)

Before me, a notary public, in and for said county and state, personally appeared, _____, who acknowledged to me that she/he did execute the foregoing instrument on behalf of _____.

IN TESTIMONY WHEREOF, I have subscribed my name and affixed my official seal this ____ day of _____ 20___.

_____ .
Notary Public
Commission Expires _____ .

THIS PAGE MUST BE SIGNED AND NOTARIZED TO BE CONSIDERED.

SECTION 01 10 00
SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Project Name: Richardson & Robbins Building - R&R Restroom Renovation

B. Owner's Name: State of Delaware- Office of Management and Budget / Division of Facilities Management.

C. The project consists of renovations to (8) existing gendered restrooms at the Richardson & Robbins Building to update fixtures and finishes, and to rearrange restroom layouts for ADA compliance. (2) grouped restrooms on the first floor will be completely removed and replaced with (6) single-user restrooms. The (6) remaining gendered restrooms will be completely renovated. All restrooms will receive new floor, wall, and ceiling finishes; new plumbing fixtures and piping, electrical devices, lighting fixtures, and HVAC accessories; toilet partitions, and casework.

1.02 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 00 52 00 - Agreement Form.

1.03 OWNER OCCUPANCY

A. Owner intends to continue to occupy adjacent portions of the existing building during the entire construction period.

B. Owner intends to occupy the Project upon Substantial Completion.

C. Owner intends to occupy adjacent portions of the existing building prior to the completion date for the conduct of normal operations.

D. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

E. Schedule the Work to accommodate Owner occupancy.

1.04 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to areas noted on Drawings.
   1. Locate and conduct construction activities in ways that will limit disturbance to site.

B. Arrange use of site and premises to allow:
   1. Owner occupancy.
   2. Work by Others.

C. Provide access to and from site as required by law and by Owner:
   1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
   2. Do not obstruct roadways, sidewalks, or other public ways without permit.

D. Use of site and facility during regular business hours only. Parking, equipment, storage, staging, etc. to be located on site and coordinated with Agency

E. Time Restrictions:
   1. Limit conduct of work to Agency business hours only. Coordinate work hours with Agency administration.

F. Utility Outages and Shutdown:
   1. Limit disruption of utility services to hours the building is unoccupied.
   2. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 7 days notice to Owner and authorities having jurisdiction.
   3. Prevent accidental disruption of utility services to other facilities.

1.05 WORK SEQUENCE

A. Coordinate construction schedule and operations with Owner.

1.06 SPECIFICATION SECTIONS APPLICABLE TO EVERY CONTRACT

A. Unless otherwise noted, provisions of the sections listed below apply to every contract. Specific items of work listed under individual contract descriptions constitute exceptions.

B. Section 01 20 00 - Price and Payment Procedures.

C. Section 01 21 00 - Allowances.

D. Section 01 25 00 - Substitution Procedures.

E. Section 01 30 00 - Administrative Requirements.

F. Section 01 32 16 - Construction Progress Schedule.

G. Section 01 35 53 - Security Procedures.

H. Section 01 40 00 - Quality Requirements.

I. Section 04 41 00 - Regulatory Requirements.

J. Section 01 42 16 - Definitions.

K. Section 01 42 19 - Reference Standards.

L. Section 01 45 33 - Code-Required Special Inspections.

M. Section 01 50 00 - Temporary Facilities and Controls.

N. Section 01 51 00 - Temporary Utilities.

O. Section 01 52 13 - Field Offices and Sheds.

P. Section 01 55 00 - Vehicular Access and Parking.

Q. Section 01 57 19 - Temporary Environmental Controls

R. Section 01 58 13 - Temporary Project Signage.

S. Section 01 60 00 - Product Requirements.

T. Section 01 61 16 - Volatile Organic Compound (VOC) Content Restrictions.

U. Section 01 70 00 - Execution and Closeout Requirements.

V. Section 01 74 19 - Construction Waste Management.

W. Section 01 78 00 - Closeout Submittals.

X. Section 01 79 00 - Demonstration and Training

Y. Section 01 91 13 - General Commissioning Requirements

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 20 00
PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

B. Documentation of changes in Contract Sum and Contract Time.

C. Change procedures.

D. Correlation of Contractor submittals based on changes.

E. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

A. Section 00 52 13 - Standard Form of Agreement Between Owner and Contractor.

(Sample AIA A101-2017)

(Sample AIA A101-2017 - Exhibit A)

B. Section 00 72 13 - General Conditions.

(Sample AIA A201-2017)

C. Section 00 73 00 - Supplementary Conditions: Percentage allowances for Contractor's overhead and profit.

D. Section 01 21 00 - Allowances: Payment procedures relating to allowances.

E. Section 01 78 00 - Closeout Submittals: Project record documents.

1.03 SCHEDULE OF VALUES

A. Use Schedule of Values Form: AIA G703, edition stipulated in the Agreement.

B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect for approval.

C. Forms filled out by hand will not be accepted.

D. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.

E. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification section. Identify site mobilization.

F. Include in each line item, the amount of Allowances specified in this section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.

G. Include separately from each line item, a direct proportional amount of Contractor's overhead and profit.

H. Revise schedule to list approved Change Orders, with each Application For Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Use Form AIA G702 and Form AIA G703, edition stipulated in the Agreement.

C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.

D. Forms filled out by hand will not be accepted.

E. For each item, provide a column for listing each of the following:
   1. Item Number.
   2. Description of work.

3. Scheduled Values.
4. Previous Applications.
5. Work in Place and Stored Materials under this Application.
6. Authorized Change Orders.
7. Total Completed and Stored to Date of Application.
8. Percentage of Completion.
9. Balance to Finish.
10. Retainage.

F. Execute certification by signature of authorized officer.

G. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.

H. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.

I. Submit one electronic and three hard-copies of each Application for Payment.

J. When Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.05 MODIFICATION PROCEDURES

A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ or subcontractors of changes to Contract Documents.

B. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue instructions directly to Contractor.

C. For other required changes, Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
2. Promptly execute the change.

D. For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 14 days.

E. Contractor may propose a change by submitting a request for change to Architect, describing the proposed change and its full effect on the work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation. Document any requested substitutions in accordance with Section 01 60 00.

F. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Architect.

G. Substantiation of Costs: Provide full information required for evaluation.
1. On request, provide the following data:
a. Quantities of products, labor, and equipment.
b. Taxes, insurance, and bonds.
c. Overhead and profit.
d. Justification for any change in Contract Time.
e. Credit for deletions from Contract, similarly documented.

2. Support each claim for additional costs with additional information:
   a. Origin and date of claim.
   b. Dates and times work was performed, and by whom.
   c. Time records and wage rates paid.
   d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

H. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

I. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

J. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

K. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

B. Application for Final Payment will not be considered until the following have been accomplished:
   1. All closeout procedures specified in Section 01 70 00.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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SECTION 01 21 00
ALLOWANCES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Contingency allowance.

B. Inspecting and testing allowances.

1.02 RELATED REQUIREMENTS

A. Section 01 20 00 - Price and Payment Procedures: Additional payment and modification procedures.

1.03 CONTINGENCY ALLOWANCE

A. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.

B. Funds will be drawn from the Contingency Allowance only by use of the Owner's Allowance Authorization Form.

C. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.04 INSPECTING AND TESTING ALLOWANCES

1.05 ALLOWANCES SCHEDULE

A. Contingency Allowance: Include the stipulated sum/price of $25,000 for use upon Owner's instructions.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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SECTION 01 21 16
ALLOWANCE AUTHORIZATION FORM

Project: **Richardson & Robbins Building – R&R Restroom Renovation**

Architect: **BECKER MORGAN GROUP, INC.** **Project No.:** **MJ1002000085**

Contractor:

AAANo.: **Initiation Date:**

The Allowance No. 01 is allocated as follows:

Insert narrative for each item included in the Allowance draw

Total original Contract Allowance was:	$
Amount of Contract Allowance Access previously authorized:	$
Adjusted Contract Allowance prior to this authorization is:	$
The amount of available Allowance will Decrease by this Access Authorization:	$
The remaining Contract Allowance, after this Access Authorization will be:	$

Recommended by:
Architect

By: (Signature) _____ .
Date: _____ .

Accepted by:
Contractor

By: (Signature): _____ .
Date: _____ .

Approved by:
Owner

By: (Signature): _____ .
Date: _____ .

END OF SECTION

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SECTION 01 25 00
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedural requirements for proposed substitutions.

1.02 RELATED REQUIREMENTS

A. Section 01 30 00 - Administrative Requirements: Submittal procedures, coordination.

B. Section 01 60 00 - Product Requirements: Fundamental product requirements, product options, delivery, storage, and handling.

1.03 DEFINITIONS

A. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.
   1. Substitutions for Cause: Proposed due to changed Project circumstances beyond Contractor's control.
      a. Unavailability.
      b. Regulatory changes.
   2. Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.
      a. Substitution requests offering advantages solely to the Contractor will not be considered.

1.04 REFERENCE STANDARDS

A. CSI/CSC Form 1.5C - Substitution Request (During the Bidding/Negotiating Stage); Current Edition.

B. CSI/CSC Form 13.1A - Substitution Request (After the Bidding/Negotiating Phase); Current Edition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
   2. Agrees to provide the same warranty for the substitution as for the specified product.
   3. Agrees to provide same or equivalent maintenance service and source of replacement parts, as applicable.
   4. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
   5. Waives claims for additional costs or time extension that may subsequently become apparent.

B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.

C. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
   1. No specific form is required. Contractor's Substitution Request documentation must include the following:
      a. Project Information:
         1) Official project name and number, and any additional required identifiers established in Contract Documents.

2) Owner's, Architect's, and Contractor's names.

b. Substitution Request Information:
   1) Discrete and consecutive Substitution Request number, and descriptive subject/title.
   2) Indication of whether the substitution is for cause or convenience.
   3) Issue date.
   4) Reference to particular Contract Document(s) specification section number, title, and article/paragraph(s).
   5) Description of Substitution.
   6) Reason why the specified item cannot be provided.
   7) Differences between proposed substitution and specified item.
   8) Description of how proposed substitution affects other parts of work.

c. Attached Comparative Data: Provide point-by-point, side-by-side comparison addressing essential attributes specified, as appropriate and relevant for the item:
   1) Physical characteristics.
   2) In-service performance.
   3) Expected durability.
   4) Visual effect.
   5) Warranties.
   6) Other salient features and requirements.
   7) Include, as appropriate or requested, the following types of documentation:
      (a) Product Data:
      (b) Samples.
      (c) Certificates, test, reports or similar qualification data.
      (d) Drawings, when required to show impact on adjacent construction elements.

d. Impact of Substitution:
   1) Savings to Owner for accepting substitution.
   2) Change to Contract Time due to accepting substitution.

D. Limit each request to a single proposed substitution item.
   1. Submit an electronic document, combining the request form with supporting data into single document.

3.02 SUBSTITUTION PROCEDURES DURING PROCUREMENT

A. See Section 00 26 00 - Procurement Substitution Procedures.

3.03 RESOLUTION

A. Architect may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.

B. Architect will notify Contractor in writing of decision to accept or reject request.
   1. Architect's decision following review of proposed substitution will be noted on the submitted form.

3.04 ACCEPTANCE

A. Accepted substitutions change the work of the Project. They will be documented and incorporated into work of the project by Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

3.05 CLOSEOUT ACTIVITIES

A. See Section 01 78 00 - Closeout Submittals, for closeout submittals.

B. Include completed Substitution Request Forms as part of the Project record. Include both approved and rejected Requests.

3.06 ATTACHMENTS

A. A facsimile of the Substitution Request Form (During Construction) required to be used on the Project is included after this section.

END OF SECTION

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SUBSTITUTION REQUEST – Construction Phase

Project: _____ Date: _____

_____ From: (Name, Title, Company): _____

Project No: _____ _____

Contract For: _____ _____

Specification Section No.: _____ Specification Title: _____

Article / Paragraph No.: _____ Description: _____

Proposed Substitution: _____

Manufacturer: _____ Rep Email: _____ Phone: _____

Trade Name: _____ Model No.: _____

Installer: _____ Address: _____ Phone: _____

History: ☐ New Product ☐ 1 – 4 years old ☐ 5 – 10 years old ☐ More than 10 years old

Differences between proposed substitution and specified product: _____

_____

_____

☐ Point-by-point comparative data attached.

Reason for not providing specified item: _____

_____

Similar Installation:

Project: _____ Architect: _____

Address: _____ Owner: _____

_____ Date Installed: _____

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

_____

_____

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

Proposed substitution affects other parts of Work: ☐ No ☐ Yes [Add] [Deduct] _____ days.

SUBSTITUTION REQUEST – Construction Phase

By Requesting this Substitution, the Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data, as stated above, is complete. Claims for additional costs related to accepted substitution, which may subsequently become apparent, are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work, as necessary for accepted substitution, will be complete in all respects.

Submitted by (Name, Title): _____

Signature: _____

Company: _____

Address: _____

Telephone: _____ Email: _____

List of Attachments: _____

A/E's REVIEW AND RECOMMENDATION

- ☐ Approve Substitution - Make submittals in accordance with Specification Section 012500 Substitution Procedures.
- ☐ Approve Substitution as noted - Make submittals in accordance with Specification Section 012500 Substitution Procedures.
- ☐ Reject Substitution - Use specified materials.
- ☐ Substitution Request received too late - Use specified materials.
- ☐ No action taken – Insufficient supporting data.

Signed By: _____ Date: _____

OWNER'S REVIEW AND ACTION

- ☐ Substitution Approved - Make submittals in accordance with Specification Section 012500 Substitution Procedures. Prepare Change Order.
- ☐ Substitution Approved as noted - Make submittals in accordance with Specification Section 012500. Substitution Procedures. Prepare Change Order.
- ☐ Substitution Rejected - Use specified materials.

Signed By: _____ Date: _____

SECTION 01 30 00
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General administrative requirements.

B. Web-based project software service.

C. Electronic document submittal service.

D. Preconstruction meeting.

E. Site mobilization meeting.

F. Progress meetings.

G. Construction progress schedule.

H. Contractor's daily reports.

I. Progress photographs.

J. Submittals for review, information, and project closeout.

K. Number of copies of submittals.

L. Requests for Interpretation (RFI) procedures.

M. Submittal procedures.

1.02 RELATED REQUIREMENTS

A. Section 00 72 00 - General Conditions: Dates for applications for payment.

B. Section 01 32 16 - Construction Progress Schedule: Form, content, and administration of schedules.

C. Section 01 60 00 - Product Requirements: General product requirements.

D. Section 01 70 00 - Execution and Closeout Requirements: Additional coordination requirements.

E. Section 01 78 00 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

F. Section 01 91 13 - General Commissioning Requirements: Additional procedures for submittals relating to commissioning.
   1. Where submittals are indicated for review by both Architect and the Commissioning Authority, submit one extra and route to Architect first, for forwarding to the Commissioning Authority.
   2. Where submittals are not indicated to be reviewed by Architect, submit directly to the Commissioning Authority; otherwise, the procedures specified in this section apply to commissioning submittals.

1.03 GENERAL ADMINISTRATIVE REQUIREMENTS

A. Comply with requirements of Section 01 70 00 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.

B. Make the following types of submittals to Architect:
   1. Requests for Interpretation (RFI).
   2. Requests for substitution.
   3. Shop drawings, product data, and samples.
   4. Test and inspection reports.
   5. Design data.
   6. Manufacturer's instructions and field reports.
   7. Applications for payment and change order requests.

8. Progress schedules.
9. Coordination drawings.
10. Correction Punch List and Final Correction Punch List for Substantial Completion.
11. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 WEB-BASED PROJECT SOFTWARE SERVICE

A. Web-Based Project Software Service: The Architect will administer, and use web-based project software to host and manage project communication and documentation.
   1. Include, at minimum, the following features:
      a. Project directory, including Owner, Contractor, subcontractors, Architect, Architect's consultants, and other entities involved in the project. Include names of contact persons and contact information for each entity.
      b. Access control for each entity and for each workflow process to determine each entity's digital rights to create, modify, view, and print documents.
      c. Workflow planning, allowing customization of workflow for each project entity.
      d. Creation, logging, tracking, and notification for project communications.
      e. Tracking of project communication statuses in real time, including timestamped response log.
      f. Procedures for viewing PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
      g. Processing and tracking of payment applications.
      h. Processing and tracking of contract modifications.
      i. Creation and distribution of meeting minutes.
      j. Document management for drawings, specifications, and coordination drawings, including revision control.
      k. Management of construction progress photographs.
      l. Mobile device compatibility.
      m. Creation of data analytics reports.
      n. Creation and export of editable logs for software functions. Provide Owner, Architect, and Architect's consultants with rights and ability to download logs when requested.
   2. Provide user licenses for use by Owner, Architect's consultants, and other entities involved in the project.
   3. Comply with the software service's current published licensing agreements.
   4. Project Closeout: Architect determines when to terminate the software service for the project and is responsible for obtaining archive copies of files for Owner.
   5. Web-Based Project Software Services: The selected service is:
      a. Newforma, Inc; Newforma Project Center (NPC) with Newforma Info Exchange (NIX): www.newforma.com/#sle.

3.02 ELECTRONIC DOCUMENT SUBMITTAL SERVICE

A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF, MS Word, or MS Excel) format, as appropriate to the document, and transmitted via an Internet-based submittal service that receives, logs and stores documents, provides electronic stamping and signatures, and notifies addressees via email.
   1. Besides submittals for review, information, and closeout, this procedure applies to Requests for Interpretation (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Contractor's correction punch list, and any other document any participant wishes to make part of the project record.
   2. Contractor is required to use this service.
   3. It is Contractor's responsibility to submit documents in allowable format.

4. Subcontractors, suppliers, and Architect's consultants will be permitted to use the service at no extra charge.
5. Users of the service need an email address, internet access, and PDF review software that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat, www.adobe.com, or Bluebeam PDF Revu, www.bluebeam.com), unless such software capability is provided by the service provider.
6. Paper document transmittals will not be reviewed; emailed electronic documents will not be reviewed.
7. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.

B. Submittal Service: The selected service is:
1. Newforma ConstructEx: www.newforma.com/our-solutions/constructex/#sle.

C. Training: One, one-hour, web-based training session will be arranged for all participants, with representatives of Architect and Contractor participating; further training is the responsibility of the user of the service.

D. Project Closeout: Architect will determine when to terminate the service for the project and is responsible for obtaining archive copies of files for Owner.

3.03 PRECONSTRUCTION MEETING

A. Schedule meeting after Notice of Award.

B. Attendance Required:
1. Owner.
2. Architect.
3. Contractor.

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

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 SITE MOBILIZATION MEETING

A. Schedule meeting at the Project site prior to Contractor occupancy.

B. Attendance Required:
1. Contractor.
2. Owner.
3. Architect.
4. Contractor's superintendent.
5. Major subcontractors.

C. Agenda:
1. Use of premises by Owner and Contractor.
2. Owner's requirements.
3. Construction facilities and controls provided by Owner.
4. Temporary utilities provided by Owner.
5. Survey and building layout.
6. Security and housekeeping procedures.

7. Schedules.
8. Application for payment procedures.
9. Procedures for testing.
10. Procedures for maintaining record documents.
11. Requirements for start-up of equipment.
12. Inspection and acceptance of equipment put into service during construction period.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.05 PROGRESS MEETINGS

A. The Architect will schedule and administer meetings throughout progress of the work at maximum bi-monthly (14 day) intervals.

B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

C. Attendance Required:
1. Contractor.
2. Owner.
3. Architect.
4. Contractor's superintendent.
5. Major subcontractors.

D. Agenda:
1. Review minutes of previous meetings.
2. Review of work progress.
3. Field observations, problems, and decisions.
4. Identification of problems that impede, or will impede, planned progress.
5. Review of submittals schedule and status of submittals.
6. Review of RFIs log and status of responses.
7. Review of off-site fabrication and delivery schedules.
8. Maintenance of progress schedule.
9. Corrective measures to regain projected schedules.
10. Planned progress during succeeding work period.
11. Maintenance of quality and work standards.
12. Effect of proposed changes on progress schedule and coordination.
13. Other business relating to work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.06 CONSTRUCTION PROGRESS SCHEDULE

A. Within 10 days after date of the Agreement, submit preliminary schedule defining planned operations for the first 60 days of work, with a general outline for remainder of work.

B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
1. Include written certification that major contractors have reviewed and accepted proposed schedule.

D. Within 10 days after joint review, submit complete schedule.

E. Submit updated schedule with each Application for Payment.

3.07 DAILY CONSTRUCTION REPORTS

A. Include only factual information. Do not include personal remarks or opinions regarding operations and/or personnel.

B. In addition to transmitting electronically a copy to Owner and Architect, submit two printed copies at weekly intervals.
   1. Submit in format acceptable to Owner.

C. Prepare a daily construction report recording the following information concerning events at Project site and project progress:
   1. Date.
   2. High and low temperatures, and general weather conditions.
   3. List of subcontractors at Project site.
   4. List of separate contractors at Project site.
   5. Approximate count of personnel at Project site.
      a. Include a breakdown for supervisors, laborers, journeymen, equipment operators, and helpers.
   6. Major equipment at Project site.
   7. Material deliveries.
   8. Safety, environmental, or industrial relations incidents.
   9. Meetings and significant decisions.
   10. Unusual events (submit a separate special report).
   11. Stoppages, delays, shortages, and losses. Include comparison between scheduled work activities (in Contractor's most recently updated and published schedule) and actual activities. Explain differences, if any. Note days or periods when no work was in progress and explain the reasons why.
   12. Meter readings and similar recordings.
   13. Emergency procedures.
   14. Directives and requests of Authority(s) Having Jurisdiction (AHJ).
   15. Change Orders received and implemented.
   16. Testing and/or inspections performed.
   17. List of verbal instruction given by Owner and/or Architect.
   18. Signature of Contractor's authorized representative.

3.08 PROGRESS PHOTOGRAPHS

A. Submit photographs with each application for payment, taken not more than 3 days prior to submission of application for payment.

B. Maintain one set of all photographs at project site for reference; same copies as submitted, identified as such.

C. Photography Type: Digital; electronic files.

D. Provide photographs of construction throughout progress of work produced by an experienced photographer, acceptable to Architect.

E. Take photographs as evidence of existing project conditions as follows:
   1. Existing conditions to be demolished and to remain.
   2. Demolition progress and existing adjacent areas to remain.
   3. New construction.

F. Views:
   1. Provide photographs from (4) corners of each room for each specified time, until date of Substantial Completion.
   2. Consult with Architect for instructions on views required.
   3. Provide factual presentation.
   4. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.

G. Digital Photographs: 32 bit color, minimum resolution of 1600 by 1200 ("2 megapixel"), in JPG format; provide files unaltered by photo editing software.
   1. Delivery Medium: Via email.
   2. File Naming: Include project identification, date and time of view, and view identification.

3. PDF File: Assemble all photos into printable pages in PDF format, with 2 to 3 photos per page, each photo labeled with file name; one PDF file per submittal.

3.09 REQUESTS FOR INFORMATION (RFI)

A. Definition: A request seeking one of the following:
   1. 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.
   2. A resolution to an issue which has arisen due to field conditions and affects design intent.

B. Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.

C. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
   1. Prepare a separate RFI for each specific item.
      a. Review, coordinate, and comment on requests originating with subcontractors and/or materials suppliers.
      b. Do not forward requests which solely require internal coordination between subcontractors.
   2. Prepare in a format and with content acceptable to Owner.
   3. Prepare using software provided by the Electronic Document Submittal Service.
   4. Combine RFI and its attachments into a single electronic file. PDF format is preferred.

D. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.
   1. Include in each request Contractor's signature attesting to good faith effort to determine from Contract Documents information requiring interpretation.
   2. Unacceptable Uses for RFIs: Do not use RFIs to request the following::
      a. Approval of submittals (use procedures specified elsewhere in this section).
      b. Approval of substitutions (see Section - 01 60 00 - Product Requirements)
      c. Changes that entail change in Contract Time and Contract Sum (comply with provisions of the Conditions of the Contract).
      d. Different methods of performing work than those indicated in the Contract Drawings and Specifications (comply with provisions of the Conditions of the Contract).
   3. Improper RFIs: Requests not prepared in compliance with requirements of this section, and/or missing key information required to render an actionable response. They will be returned without a response, with an explanatory notation.
   4. Frivolous RFIs: Requests regarding information that is clearly indicated on, or reasonably inferable from, Contract Documents, with no additional input required to clarify the question. They will be returned without a response, with an explanatory notation.
      a. The Owner reserves the right to assess the Contractor for the costs (on time-and-materials basis) incurred by the Architect, and any of its consultants, due to processing of such RFIs.

E. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.
   1. Official Project name and number, and any additional required identifiers established in Contract Documents.
   2. Owner's, Architect's, and Contractor's names.
   3. Discrete and consecutive RFI number, and descriptive subject/title.
   4. Issue date, and requested reply date.
   5. Reference to particular Contract Document(s) requiring additional information/interpretation. Identify pertinent drawing and detail number and/or specification section number, title, and paragraph(s).

6. Annotations: Field dimensions and/or description of conditions which have engendered the request.
7. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example; routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.

F. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.

G. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.
1. Indicate current status of every RFI. Update log promptly and on a regular basis.
2. Note dates of when each request is made, and when a response is received.
3. Highlight items requiring priority or expedited response.
4. Highlight items for which a timely response has not been received to date.
5. Identify and include improper or frivolous RFIs.

H. Review Time: Architect will respond and return RFIs to Contractor within seven calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 12:00 noon will be considered as having been received on the following regular working day.
1. Response period may be shortened or lengthened for specific items, subject to mutual agreement, and recorded in a timely manner in progress meeting minutes.

I. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.
1. Response may include a request for additional information, in which case the original RFI will be deemed as having been answered, and an amended one is to be issued forthwith. Identify the amended RFI with an R suffix to the original number.
2. Do not extend applicability of a response to specific item to encompass other similar conditions, unless specifically so noted in the response.
3. Upon receipt of a response, promptly review and distribute it to all affected parties, and update the RFI Log.
4. Notify Architect within seven calendar days if an additional or corrected response is required by submitting an amended version of the original RFI, identified as specified above.

3.10 SUBMITTAL SCHEDULE

A. Submit to Architect for review a schedule for submittals in tabular format.
1. Submit at the same time as the preliminary schedule specified in Section - 01 32 16 - Construction Progress Schedule.
2. Coordinate with Contractor's construction schedule and schedule of values.
3. Format schedule to allow tracking of status of submittals throughout duration of construction.
4. Arrange information to include scheduled date for initial submittal, specification number and title, submittal category (for review or for information), description of item of work covered, and role and name of subcontractor.
5. Account for time required for preparation, review, manufacturing, fabrication and delivery when establishing submittal delivery and review deadline dates.
a. For assemblies, equipment, systems comprised of multiple components and/or requiring detailed coordination with other work, allow for additional time to make corrections or revisions to initial submittals, and time for their review.

3.11 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:

1. Product data.
2. Design data.
3. Shop drawings.
4. Samples for selection.
5. Samples for verification.

B. Submit to Architect for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.

C. Samples will be reviewed for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 78 00 - Closeout Submittals.

3.12 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
1. Design data.
2. Certificates.
3. Test reports.
4. Inspection reports.
5. Manufacturer's instructions.
6. Manufacturer's field reports.
7. Other types indicated.

B. Submit for Architect's knowledge as contract administrator or for Owner.

3.13 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.

B. Submit Final Correction Punch List for Substantial Completion.

C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 01 78 00 - Closeout Submittals:
1. Project record documents.
2. Operation and maintenance data.
3. Warranties.
4. Bonds.
5. Other types as indicated.

D. Submit for Owner's benefit during and after project completion.

3.14 NUMBER OF COPIES OF SUBMITTALS

A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
1. After review, produce duplicates.
2. Retained samples will not be returned to Contractor unless specifically so stated.

3.15 SUBMITTAL PROCEDURES

A. General Requirements:
1. Use a single transmittal for related items.
2. Transmit using approved form.
a. Use Contractor's form, in compliance with form AIA G801 and form CSI 12.1A
3. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.

4. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
5. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
   a. Submittals from sources other than the Contractor, or without Contractor's stamp will not be acknowledged, reviewed, or returned.
6. Deliver each submittal on date noted in submittal schedule, unless an earlier date has been agreed to by all affected parties, and is of the benefit to the project.
   a. Upload submittals in electronic form to Electronic Document Submittal Service website.
7. Schedule submittals to expedite the Project, and coordinate submission of related items.
   a. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
   b. For sequential reviews involving Architect's consultants, Owner, or another affected party, allow an additional 7 days.
   c. For sequential reviews involving approval from authorities having jurisdiction (AHJ), in addition to Architect's approval, allow an additional 30 days.
8. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
9. Provide space for Contractor and Architect review stamps.
10. When revised for resubmission, identify all changes made since previous submission.
11. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
12. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.
13. Submittals not requested will not be recognized or processed.

B. Product Data Procedures:
   1. Submit only information required by individual specification sections.
   2. Collect required information into a single submittal.
   3. Do not submit (Material) Safety Data Sheets for materials or products.

C. Shop Drawing Procedures:
   1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
   2. Do not reproduce Contract Documents to create shop drawings.
   3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.

D. Samples Procedures:
   1. Transmit related items together as single package.
   2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.
   3. Include with transmittal high-resolution image files of samples to facilitate electronic review and approval. Provide separate submittal page for each item image.

3.16 SUBMITTAL REVIEW

A. Submittals for Review: Architect will review each submittal, and approve, or take other appropriate action.

B. Submittals for Information: Architect will acknowledge receipt and review. See below for actions to be taken.

C. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.

D. Architect's and consultants' actions on items submitted for review:

1. Authorizing purchasing, fabrication, delivery, and installation:
   a. "Approved", or language with same legal meaning.
   b. "Approved as Noted", or language with same legal meaning.
2. Not Authorizing fabrication, delivery, and installation:

E. Architect's and consultants' actions on items submitted for information:
   1. Items for which no action was taken:
      a. "Received for Record" - to notify the Contractor that the submittal has been received for record only.

END OF SECTION

SECTION 01 32 16
CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preliminary schedule.

B. Construction progress schedule, bar chart type.

1.02 RELATED SECTIONS

A. Section 01 10 00 - Summary: Work sequence.

1.03 REFERENCE STANDARDS

A. AGC (CPSM) - Construction Planning and Scheduling Manual; 2004.

1.04 SUBMITTALS

A. Within 10 days after date of Agreement, submit preliminary schedule.

B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
   1. Include written certification that major contractors have reviewed and accepted proposed schedule.

D. Within 10 days after joint review, submit complete schedule.

E. Submit updated schedule with each Application for Payment.

F. Submit in PDF format.

G. Submit under transmittal letter form specified in Section 01 30 00 - Administrative Requirements.

1.05 QUALITY ASSURANCE

A. Scheduler: Contractor's personnel or specialist Consultant specializing in CPM scheduling with 5 years minimum experience in scheduling construction work of a complexity comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within 48 hours of request.

B. Contractor's Administrative Personnel: 5 years minimum experience in using and monitoring CPM schedules on comparable projects.

1.06 SCHEDULE FORMAT

A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.

B. Diagram Sheet Size: Maximum 22 x 17 inches (560 x 432 mm).

C. Sheet Size: Multiples of 8-1/2 x 11 inches (216 x 280 mm).

D. Scale and Spacing: To allow for notations and revisions.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRELIMINARY SCHEDULE

A. Prepare preliminary schedule in the form of a horizontal bar chart.

3.02 CONTENT

A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.

B. Identify each item by specification section number.

C. Identify work of separate stages and other logically grouped activities.

D. Provide sub-schedules for each stage of Work identified in Section 01 10 00 - Summary.

E. Provide sub-schedules to define critical portions of the entire schedule.

F. Include conferences and meetings in schedule.

G. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.

H. Provide separate schedule of submittal dates for shop drawings, product data, and samples, owner-furnished products, products identified under Allowances, and dates reviewed submittals will be required from Architect. Indicate decision dates for selection of finishes.

I. Indicate delivery dates for owner-furnished products.

J. Coordinate content with schedule of values specified in Section 01 20 00 - Price and Payment Procedures.

K. Provide legend for symbols and abbreviations used.

3.03 BAR CHARTS

A. Include a separate bar for each major portion of Work or operation.

B. Identify the first workday of each week.

3.04 NETWORK ANALYSIS

A. Prepare network analysis diagrams and supporting mathematical analyses using the Critical Path Method.

B. Illustrate order and interdependence of activities and sequence of work; how start of a given activity depends on completion of preceding activities, and how completion of the activity may restrain start of subsequent activities.

C. Mathematical Analysis: Tabulate each activity of detailed network diagrams, using calendar dates, and identify for each activity:
   1. Preceding and following event numbers.
   2. Activity description.
   3. Estimated duration of activity, in maximum 15 day intervals.
   4. Earliest start date.
   5. Earliest finish date.
   6. Actual start date.
   7. Actual finish date.
   8. Latest start date.
   9. Latest finish date.
   10. Total and free float; float time shall accrue to Owner and to Owner's benefit.
   11. Monetary value of activity, keyed to Schedule of Values.
   12. Percentage of activity completed.
   13. Responsibility.

D. Analysis Program: Capable of compiling monetary value of completed and partially completed activities, accepting revised completion dates, and recomputation of all dates and float.

E. Required Reports: List activities in sorts or groups:
   1. By preceding work item or event number from lowest to highest.
   2. By amount of float, then in order of early start.

3.05 REVIEW AND EVALUATION OF SCHEDULE

A. Participate in joint review and evaluation of schedule with Architect at each submittal.

B. Evaluate project status to determine work behind schedule and work ahead of schedule.

C. After review, revise as necessary as result of review, and resubmit within 10 days.

3.06 UPDATING SCHEDULE

A. Maintain schedules to record actual start and finish dates of completed activities.

B. Indicate progress of each activity to date of revision, with projected completion date of each activity.

C. Annotate diagrams to graphically depict current status of Work.

D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.

E. Indicate changes required to maintain Date of Substantial Completion.

F. Submit reports required to support recommended changes.

3.07 DISTRIBUTION OF SCHEDULE

A. Distribute copies of updated schedules to Contractor's project site file, to subcontractors, suppliers, Architect, Owner, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

END OF SECTION

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SECTION 01 35 53
SECURITY PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Security measures including formal security program, entry control, personnel identification, guard service, and miscellaneous restrictions.

1.02 RELATED REQUIREMENTS

A. Section 01 10 00 - Summary: use of premises and occupancy.

B. Section 01 50 00 - Temporary Facilities and Controls: Temporary lighting.

1.03 SECURITY PROGRAM

A. Protect Work , existing premises and Owner's operations from theft, vandalism, and unauthorized entry.

B. Initiate program at project mobilization.

C. Maintain program throughout construction period until directed by Architect.

1.04 ENTRY CONTROL

A. Restrict entrance of persons and vehicles into Project site and existing facilities.

B. Allow entrance only to authorized persons with proper identification.

C. Maintain log of workers and visitors, make available to Owner on request.

D. Coordinate access of Owner's personnel to site in coordination with Owner's security forces.

1.05 PERSONNEL IDENTIFICATION

A. Provide identification badge to each person authorized to enter premises.

B. Badge To Include: Personal photograph, name, assigned number, expiration date and employer.

C. Require return of badges at expiration of their employment on the Work.

1.06 GUARD SERVICE

1.07 RESTRICTIONS

A. Do not allow cameras on site or photographs taken except by written approval of Owner.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittals.

B. Quality assurance.

C. References and standards.

D. Testing and inspection agencies and services.

E. Contractor's construction-related professional design services.

F. Control of installation.

G. Tolerances.

H. Manufacturers' field services.

I. Defect Assessment.

1.02 RELATED REQUIREMENTS

A. Document 00 31 00 - Available Project Information: Soil investigation data.

B. Section 01 21 00 - Allowances: Allowance for payment of testing services.

C. Section 01 30 00 - Administrative Requirements: Submittal procedures.

D. Section 01 42 16 - Definitions.

E. Section 01 42 19 - Reference Standards.

F. Section 01 60 00 - Product Requirements: Requirements for material and product quality.

1.03 REFERENCE STANDARDS

A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008 (Reapproved 2023).

B. ASTM C1077 - Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation; 2026.

C. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry; 2025.

D. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2023.

E. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2025b.

F. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2026.

G. ASTM E699 - Standard Specification for Agencies Involved in Testing, Quality Assurance, and Evaluating of Manufactured Building Components; 2016.

H. IAS AC89 - Accreditation Criteria for Testing Laboratories; 2021.

1.04 DEFINITIONS

A. Contractor's Quality Control Plan: Contractor's management plan for executing the Contract for Construction.

B. Contractor's Professional Design Services: Design of some aspect or portion of the project by party other than the design professional of record. Provide these services as part of the Contract for Construction.

1. Design Services Types Required:
    a. Construction-Related: Services Contractor needs to provide in order to carry out the Contractor’s sole responsibilities for construction means, methods, techniques, sequences, and procedures.

b. Design-Related: Design services explicitly required to be performed by another design professional due to highly-technical and/or specialized nature of a portion of the project. Services primarily involve engineering analysis, calculations, and design, and are not intended to alter the aesthetic aspects of the design.

C. Design Data: Design-related, signed and sealed drawings, calculations, specifications, certifications, shop drawings and other submittals provided by Contractor, and prepared directly by, or under direct supervision of, appropriately licensed design professional.

1.05 CONTRACTOR'S CONSTRUCTION-RELATED PROFESSIONAL DESIGN SERVICES

A. Coordination: Contractor's professional design services are subject to requirements of project's Conditions for Construction Contract.

1.06 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Designer's Qualification Statement: Submit for Architect's knowledge as contract administrator, or for Owner's information.
1. Include information for each individual professional responsible for producing, or supervising production of, design-related professional services provided by Contractor.
a. Full name.
b. Professional licensure information.
c. Statement addressing extent and depth of experience specifically relevant to design of items assigned to Contractor.

C. Design Data: Submit for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information.
1. Include calculations that have been used to demonstrate compliance to performance and regulatory criteria provided, and to determine design solutions.
2. Include required product data and shop drawings.
3. Include a statement or certification attesting that design data complies with criteria indicated, such as building codes, loads, functional, and similar engineering requirements.
4. Include signature and seal of design professional responsible for allocated design services on calculations and drawings.

D. Test Reports: After each test/inspection, promptly submit two copies of report to Architect and to Contractor.
1. Include:
a. Date issued.
b. Project title and number.
c. Name of inspector.
d. Date and time of sampling or inspection.
e. Identification of product and specifications section.
f. Location in the Project.
g. Type of test/inspection.
h. Date of test/inspection.
i. Results of test/inspection.
j. Compliance with Contract Documents.
k. When requested by Architect, provide interpretation of results.
2. Test report submittals are for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information.

E. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.

1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

F. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

G. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents.

H. Erection Drawings: Submit drawings for Architect's benefit as contract administrator or for Owner.
1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents.

1.07 QUALITY ASSURANCE

A. Testing Agency Qualifications:
1. Prior to start of work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
3. Qualification Statement: Provide documentation showing testing laboratory is accredited under IAS AC89.

B. Designer Qualifications: Where professional engineering design services and design data submittals are specifically required of Contractor by Contract Documents, provide services of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

C. Contractor's Quality Control (CQC) Plan:
1. Prior to start of work, submit a comprehensive plan describing how contract deliverables will be produced. Tailor CQC plan to specific requirements of the project. Include the following information:
a. Management Structure: Identify personnel responsible for quality. Include a chart showing lines of authority.
1) Include qualifications (in resume form), duties, responsibilities of each person assigned to CQC function.
b. Management Approach: Define, describe, and include in the plan specific methodologies used in executing the work.
1) Management and control of documents and records relating to quality.
2) Communications.
3) Coordination procedures.
4) Resource management.
5) Process control.
6) Inspection and testing procedures and scheduling.
7) Control of noncomplying work.
8) Tracking deficiencies from identification, through acceptable corrective action, and verification.
9) Control of testing and measuring equipment.
10) Project materials certification.
11) Managerial continuity and flexibility.

c. Owner will not make a separate payment for providing and maintaining a Quality Control Plan. Include associated costs in Bid price.
d. Acceptance of the plan is required prior to start of construction activities not including mobilization work. Owner's acceptance of the plan will be conditional and predicated on continuing satisfactory adherence to the plan. Owner reserves the right to require Contractor to make changes to the plan and operations, including removal of personnel, as necessary, to obtain specified quality of work results.

D. Quality-Control Personnel Qualifications. Engage a person with requisite training and experience to implement and manage quality assurance (QA) and quality control (QC) for the project.

1.08 REFERENCES AND STANDARDS

A. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

B. Obtain copies of standards where required by product specification sections.

C. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

1.09 TESTING AND INSPECTION AGENCIES AND SERVICES

A. Owner will employ services of an independent testing agency to perform certain specified testing; payment for cost of services will be derived from allowance specified in Section 01 21 00; see Section 01 21 00 and applicable sections for description of services included in allowance.

B. Owner will employ and pay for services of an independent testing agency to perform other specified testing.

C. Contractor shall employ and pay for services of an independent testing agency to perform other specified testing.

D. As indicated in individual specification sections, Owner or Contractor shall employ and pay for services of an independent testing agency to perform other specified testing.

E. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

F. Contractor Employed Agency:
1. Testing agency: Comply with requirements of ASTM E329, ASTM E543, ASTM E699, ASTM C1021, ASTM C1077, ASTM C1093, and ASTM D3740.
2. Inspection agency: Comply with requirements of ASTM D3740, and ASTM E329.
3. Laboratory Qualifications: Accredited by IAS according to IAS AC89.
4. Laboratory: Authorized to operate in the State in which the Project is located.
5. Laboratory Staff: Maintain a full time registered Engineer on staff to review services.
6. Testing Equipment: Calibrated at reasonable intervals either by NIST or using an NIST established Measurement Assurance Program, under a laboratory measurement quality assurance program.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

3.03 TESTING AND INSPECTION

A. Testing Agency Duties:
1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
2. Perform specified sampling and testing of products in accordance with specified standards.
3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
4. Promptly notify Architect and Contractor of observed irregularities or non-compliance of Work or products.
5. Perform additional tests and inspections required by Architect.
6. Submit reports of all tests/inspections specified.

B. Limits on Testing/Inspection Agency Authority:
1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency may not approve or accept any portion of the Work.
3. Agency may not assume any duties of Contractor.
4. Agency has no authority to stop the Work.

C. Contractor Responsibilities:
1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
2. Cooperate with laboratory personnel and provide access to the Work and to manufacturers' facilities.
3. Provide incidental labor and facilities:
    a. To provide access to Work to be tested/inspected.
    b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
    c. To facilitate tests/inspections.
    d. To provide storage and curing of test samples.
4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

D. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.

E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.04 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment as applicable, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.05 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not complying with specified requirements.

B. If, in the opinion of Architect, it is not practical to remove and replace the work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 41 00
REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY OF REFERENCE STANDARDS

A. Regulatory requirements applicable to this project are the following:

B. 28 CFR 35 - Nondiscrimination on the Basis of Disability in State and Local Government Services; Final Rule; Department of Justice; current edition.

C. 28 CFR 36 - Nondiscrimination by Public Accommodations and in Commercial Facilities; Final Rule; Department of Justice; current edition.

D. 29 CFR 1910 - Occupational Safety and Health Standards; Current Edition.

E. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.

F. 49 CFR 37 - Transportation Services for Individuals with Disabilities (ADA); current edition.

G. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

H. FED-STD-795 - Uniform Federal Accessibility Standards (UFAS); 1988.

I. State of Delaware amendments to some or all of the following.

J. City of Dover amendments to some or all of the following.

K. Zoning Code

L. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

M. ICC (IFC) - International Fire Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

N. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

O. NFPA 1 - Fire Code; 2024, with Errata.

P. NFPA 101 - Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

Q. Building Code

R. IAPMO (UPC) - Uniform Plumbing Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

S. ICC (IPC) - International Plumbing Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

T. Plumbing Code:

U. IAPMO (UPC) - Uniform Plumbing Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

V. ICC (IMC) - International Mechanical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

W. Mechanical Code:

X. ICC (IECC) - International Energy Conservation Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

Y. ICC (IFGC) - International Fuel Gas Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

Z. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

AA. Existing Building Code: ICC (IEBC).

1.02 RELATED REQUIREMENTS

A. Section 01 40 00 - Quality Requirements.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 42 16
DEFINITIONS

PART 1 GENERAL

1.01 SUMMARY

A. Other definitions are included in individual specification sections.

1.02 DEFINITIONS

A. Furnish: To supply, deliver, unload, and inspect for damage.

B. Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, start up, and make ready for use.

C. Product: Material, machinery, components, equipment, fixtures, and systems forming the work result. Not materials or equipment used for preparation, fabrication, conveying, or erection and not incorporated into the work result. Products may be new, never before used, or re-used materials or equipment.

D. Provide: To furnish and install.

E. Supply: Same as Furnish.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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SECTION 01 42 19
REFERENCE STANDARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements relating to referenced standards.

B. Reference standards full title and edition date.

1.02 RELATED REQUIREMENTS

A. Document 00 72 00 - General Conditions: Reference standards.

1.03 QUALITY ASSURANCE

A. For products or workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Should specified reference standards conflict with Contract Documents, request clarification from the Architect before proceeding.

C. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Architect shall be altered by Contract Documents by mention or inference otherwise in any reference document.

PART 2 CONSTRUCTION INDUSTRY ORGANIZATION DOCUMENTS

2.01 INDUSTRY ORGANIZATIONS: WHERE ABBREVIATIONS AND ACRONYMS ARE USED IN SPECIFICATIONS OR OTHER CONTRACT DOCUMENTS, THEY ARE TO MEAN THE RECOGNIZED NAME OF THE ENTITIES INDICATED IN GALE'S "ENCYCLOPEDIA OF ASSOCIATIONS: NATIONAL ORGANIZATIONS OF THE U.S." OR IN COLUMBIA BOOKS' "NATIONAL TRADE & PROFESSIONAL ASSOCIATIONS OF THE UNITED STATES."

A. AA -- ALUMINUM ASSOCIATION, INC.

B. AABC -- ASSOCIATED AIR BALANCE COUNCIL

C. AASHTO -- AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

D. AATCC -- AMERICAN ASSOCIATION OF TEXTILE CHEMISTS & COLORISTS

E. ABC -- American Bird Conservancy

F. ABMA -- AMERICAN BEARING MANUFACTURERS ASSOCIATION, INC.

G. ACA -- AMERICAN COATINGS ASSOCIATION

H. ACG -- AABC COMMISSIONING GROUP

I. ACGIH -- AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS

J. ACI -- AMERICAN CONCRETE INSTITUTE INTERNATIONAL

K. ACMA -- AMERICAN COMPOSITES MANUFACTURERS ASSOCIATION

L. ACT

M. ADC -- AIR DIFFUSION COUNCIL

N. AEIC -- ASSOCIATION OF EDISON ILLUMINATING COMPANIES

O. AERC -- ATTACHMENTS ENERGY RATING COUNCIL

P. AFNOR - Association Francaise de Normalisation

Q. AFPA -- AMERICAN FOREST AND PAPER ASSOCIATION

R. AGA -- AMERICAN GALVANIZERS ASSOCIATION, INC.

S. AGC -- ASSOCIATED GENERAL CONTRACTORS OF AMERICA

T. AGMA -- AMERICAN GEAR MANUFACTURERS ASSOCIATION

U. AHA -- AMERICAN HARDBOARD ASSOCIATION

V. AHAM -- ASSOCIATION OF HOME APPLIANCE MANUFACTURERS:

W. AHRI -- AIR-CONDITIONING, HEATING, AND REFRIGERATION INSTITUTE

X. AI -- THE ASPHALT INSTITUTE

Y. AIA -- THE AMERICAN INSTITUTE OF ARCHITECTS

Z. AICPA -- AMERICAN INSTITUTE OF CPAS

AA. AISC -- AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC.

BB. AISI -- AMERICAN IRON AND STEEL INSTITUTE

CC. AIST -- ASSOCIATION FOR IRON AND STEEL TECHNOLOGY

DD. AITC -- AMERICAN INSTITUTE OF TIMBER CONSTRUCTION

EE. ALI -- AMERICAN LADDER INSTITUTE

FF. ALSC -- AMERICAN LUMBER STANDARDS COMMITTEE

GG. AMCA -- AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC.

HH. ANSI -- AMERICAN NATIONAL STANDARDS INSTITUTE

II. AOSA -- ASSOCIATION OF OFFICIAL SEED ANALYSTS

JJ. APA -- APA - THE ENGINEERED WOOD ASSOCIATION

KK. APHA -- AMERICAN PUBLIC HEALTH ASSOCIATION

LL. API -- AMERICAN PETROLEUM INSTITUTE

MM. API -- ALLIANCE FOR THE POLYURETHANES INDUSTRY, AMERICAN PLASTICS COUNCIL

NN. APSP -- ASSOCIATION OF POOL & SPA PROFESSIONALS

OO. ARI -- AIR-CONDITIONING AND REFRIGERATION INSTITUTE (See AHRI)

PP. ARPM - ASSOCIATION FOR RUBBER PRODUCTS MANUFACTURERS

QQ. ARRA -- ASPHALT RECYCLING AND RECLAIMING ASSOCIATION

RR. ASA -- ACOUSTICAL SOCIETY OF AMERICA

SS. ASCA -- ARCHITECTURAL SPRAY COATERS ASSOCIATION

TT. ASCE -- AMERICAN SOCIETY OF CIVIL ENGINEERS

UU. ASHE -- AMERICAN SOCIETY FOR HEALTH CARE ENGINEERING (AMERICAN HOSPITAL ASSOCIATION)

VV. ASHRAE -- AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC.

WW. ASME -- THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

XX. ASPA -- AMERICAN SOD PRODUCERS ASSOCIATION (see Turfgrass Producers International)

YY. ASPE -- AMERICAN SOCIETY OF PLUMBING ENGINEERS

ZZ. ASSE -- AMERICAN SOCIETY OF SANITARY ENGINEERING

AAA. ASTM A Series -- ASTM INTERNATIONAL

BBB. ASTM B Series -- ASTM INTERNATIONAL

CCC. ASTM C Series -- ASTM INTERNATIONAL

DDD. ASTM F Series -- ASTM INTERNATIONAL

EEE. ASTM G Series -- ASTM INTERNATIONAL

FFF. ASTM SYMPOSIA AND SELECTED TECHNICAL PAPERS -- ASTM INTERNATIONAL

GGG. AWC -- AMERICAN WOOD COUNCIL

HHH. AWCI -- ASSOCIATION OF THE WALL AND CEILING INDUSTRIES INTERNATIONAL

III. AWI -- ARCHITECTURAL WOODWORK INSTITUTE

JJJ. AWI/AWMAC/WI -- JOINT PUBLICATION OF ARCHITECTURAL WOODWORK INSTITUTE/ARCHITECTURAL WOODWORK MANUFACTURERS ASSOCIATION OF CANADA/WOODWORK INSTITUTE

KKK. AWMAC -- ARCHITECTURAL WOODWORK MANUFACTURERS ASSOCIATION OF CANADA

LLL. AWMAC/WI -- JOINT PUBLICATION OF ARCHITECTURAL WOODWORK MANUFACTURERS ASSOCIATION OF CANADA/WOODWORK INSTITUTE

MMM. AWPA -- AMERICAN WOOD-PRESERVERS' ASSOCIATION

NNN. AWPB -- AMERICAN WOOD PRESERVERS BUREAU

OOO. AWS -- AMERICAN WELDING SOCIETY

PPP. AWWA -- AMERICAN WATER WORKS ASSOCIATION

QQQ. BAAQMD -- BAY AREA AIR QUALITY MANAGEMENT DISTRICT

RRR. BHMA -- BUILDERS HARDWARE MANUFACTURERS ASSOCIATION

SSS. BIA -- BRICK INDUSTRY ASSOCIATION

TTT. BICSI -- BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL

UUU. BIFMA -- BUSINESS AND INSTITUTIONAL FURNITURE MANUFACTURERS ASSOCIATION

VVV. BOMA -- BUILDING OWNERS AND MANAGERS ASSOCIATION

WWW. BSI -- BRITISH STANDARDS INSTITUTION

XXX. Bluetooth CS - Bluetooth Core Specification;2016, Addendum 2017.

YYY. C2C -- CRADLE TO CRADLE PRODUCTS INNOVATION INSTITUTE

ZZZ. CABO -- COUNCIL OF AMERICAN BUILDING OFFICIALS:

AAAA. CAGI -- COMPRESSED AIR AND GAS INSTITUTE

BBBB. CAL -- STATE OF CALIFORNIA

CCCC. CAN -- STANDARDS COUNCIL OF CANADA (NATIONAL STANDARDS OF CANADA)

DDDD. CARB -- CALIFORNIA AIR RESOURCES BOARD

EEEE. CBMA -- CERTIFIED BALLAST MANUFACTURERS ASSOCIATION

FFFF. CDA -- COPPER DEVELOPMENT ASSOCIATION, INC.

GGGG. CEA -- CONSUMER ELECTRONICS ASSOCIATION

HHHH. CEN -- COMITÉ EUROPÉEN DE NORMIALISATION (EUROPEAN COMMITTEE FOR STANDARDS)

IIII. CENELEC -- COMITÉ EUROPÉEN DE NORMIALISATION ELECTROTECHNIQUE (EUROPEAN ELECTROTECHNICAL COMMITTEE FOR STANDARDIZATION)

JJJJ. CFSEI - COLD-FORMED STEEL ENGINEERS INSTITUTE

KKKK. CGA -- CANADIAN GAS ASSOCIATION

LLLL. CGA -- COMPRESSED GAS ASSOCIATION

MMMM. CGSB -- CANADIAN GENERAL STANDARDS BOARD

NNNN. CHPS -- COLLABORATIVE FOR HIGH PERFORMANCE SCHOOLS

OOOO. CiA SSG - CANopen Specifications, Standards and Guidelines;Current Edition.

PPPP. CISCA -- CEILINGS & INTERIOR SYSTEMS CONSTRUCTION ASSOCIATION

QQQQ. CISPI -- CAST IRON SOIL PIPE INSTITUTE

RRRR. CLFMI -- CHAIN LINK FENCE MANUFACTURERS INSTITUTE

SSSS. CMR -- CODE OF MASSACHUSETTS REGULATIONS

TTTT. CONSENSUSDOCS -- CONSENSUSDOCS, LLC

UUUU. CPA -- COMPOSITE PANEL ASSOCIATION

VVVV. CRI -- CARPET AND RUG INSTITUTE

WWWW. CRRC -- COOL ROOF RATING COUNCIL

XXXX. CRSI -- CONCRETE REINFORCING STEEL INSTITUTE

YYYY. CSA -- CSA GROUP (FORMERLY CSA INTERNATIONAL)

ZZZZ. CSFM -- CALIFORNIA STATE FIRE MARSHAL

AAAAA. CSI/CSC -- CONSTRUCTION SPECIFICATIONS INSTITUTE/CONSTRUCTION SPECIFICATIONS CANADA

BBBBB. CSSB -- CEDAR SHAKE AND SHINGLE BUREAU

CCCCC. CTA -- CONSUMER TECHNOLOGY ASSOCIATION (FORMERLY CONSUMER ELECTRONICS ASSOCIATION)

DDDDD. CTI -- CERAMIC TILE INSTITUTE

EEEEE. CTI -- COOLING TECHNOLOGY INSTITUTE

FFFFF. DASMA -- DOOR & ACCESS SYSTEMS MANUFACTURERS' ASSOCIATION, INTERNATIONAL

GGGGG. DBIA -- THE DESIGN BUILD INSTITUTE OF AMERICA, INC.

HHHHH. DFI -- DEEP FOUNDATION INSTITUTE

IIIII. DHI -- DOOR AND HARDWARE INSTITUTE

JJJJJ. DIPRA - DUCTILE IRON PIPE RESEARCH ASSOCIATION

KKKKK. DOCSIS -- DATA-OVER-CABLE SERVICE INTERFACE SPECIFICATIONS

LLLLL. EC -- EUROPEAN COMMISSION

MMMMM. ECHA -- EUROPEAN CHEMICALS AGENCY

NNNNN. EIA -- ELECTRONIC INDUSTRIES ALLIANCE

OOOOO. EIA -- ENVIRONMENTAL INDUSTRY ASSOCIATION

PPPPP. EIMA -- EXTERIOR INSULATION MANUFACTURERS ASSOCIATION

QQQQQ. EJCDC -- ENGINEERS' JOINT CONTRACT DOCUMENTS COMMITTEE

RRRRR. EJMA -- EXPANSION JOINT MANUFACTURERS ASSOCIATION

SSSSS. ETG -- ETHERCAT TECHNOLOGY GROUP

TTTTT. ETL -- ETL TESTING LABORATORY

UUUUU. FieldComm Group (FFTS) - Foundation Fieldbus Technical Specifications;2014.

VVVVV. FLA -- STATE OF FLORIDA

WWWWW. FM -- FACTORY MUTUAL GLOBAL

XXXXX. GA -- GYPSUM ASSOCIATION

YYYYY. GANA -- GLASS ASSOCIATION OF NORTH AMERICA

ZZZZZ. GEI -- GREENGUARD ENVIRONMENTAL INSTITUTE

AAAAAA. GREEN GLOBES -- GREEN BUILDING INITIATIVE

BBBBBB. GREENSEAL -- GREENSEAL, INC.

CCCCCC. GREENSCREEN -- CLEAN PRODUCTION ACTION

DDDDDD. GRI -- GEOSYNTHETIC RESEARCH INSTITUTE

EEEEEE. HI -- HYDRAULIC INSTITUTE

FFFFFF. HI -- THE HYDRONICS INSTITUTE (See AHRI)

GGGGGG. HPDC -- HEALTH PRODUCT DECLARATION COLLABORATIVE

HHHHHH. HPVA -- HARDWOOD PLYWOOD VENEER ASSOCIATION

IIIIII. HPW -- H.P. WHITE LABORATORY, INC.

JJJJJJ. IAAF -- INTERNATIONAL AMATEUR ATHLETIC FEDERATION

KKKKKK. IAPMO -- INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS

LLLLLL. IAS -- INTERNATIONAL ACCREDITATION SERVICE

MMMMMM. ICBO -- INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS

NNNNNN. ICBO-ES -- ICBO EVALUATION SERVICE, INC.

OOOOOO. ICC -- INTERNATIONAL CODE COUNCIL, INC.

PPPPPP. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

QQQQQQ. ICC-ES -- ICC EVALUATION SERVICE, INC.

RRRRRR. ICEA -- INSULATED CABLE ENGINEERS ASSOCIATION

SSSSSS. ICPI -- INTERLOCKING CONCRETE PAVEMENT INSTITUTE

TTTTTT. ICRI -- INTERNATIONAL CONCRETE REPAIR INSTITUTE

UUUUUU. IEC -- INTERNATIONAL ELECTROTECHNICAL COMMISSION

VVVVVV. IEEE -- INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS

WWWWWW. IES/IESNA -- ILLUMINATING ENGINEERING SOCIETY

XXXXXX. IEST -- Institue of Environmental Sciences and Technology

YYYYYY. IETF -- INTERNET ENGINEERING TASK FORCE

ZZZZZZ. IGMA -- INSULATING GLASS MANUFACTURERS ALLIANCE

AAAAAAA. IGS -- INTERNATIONAL GEOSYNTHETICS SOCIETY

BBBBBBB. IGSHPA -- INTERNATIONAL GROUND SOURCE HEAT PUMP ASSOCIATION

CCCCCCC. IIAR -- INTERNATIONAL INSTITUTE OF AMMONIA REFRIGERATION

DDDDDDD. ILFI -- INTERNATIONAL LIVING FUTURE INSTITUTE

EEEEEEE. ILI -- INDIANA LIMESTONE INSTITUTE OF AMERICA, INC.

FFFFFFF. IMIAWC -- INTERNATIONAL MASONRY INDUSTRY ALL-WEATHER COUNCIL

GGGGGGG. ISA -- INSTRUMENT SOCIETY OF AMERICA

HHHHHHH. ISDI -- INSULATED STEEL DOOR INSTITUTE

IIIIIII. ISFA - INTERNATIONAL SURFACE FABRICATORS ASSOCIATION

JJJJJJJ. ISS -- IRON AND STEEL SOCIETY

KKKKKKK. ISSFA - INTERNATIONAL SOLID SURFACE FABRICATORS ASSOCIATION

LLLLLLL. ISO -- INTERNATIONAL STANDARDS ORGANIZATION

MMMMMMM. ITS -- INTERTEK TESTING SERVICES NA, INC.

NNNNNNN. ITU-T -- International Telecommunications Union -Telecommunication Standardization Sector

OOOOOOO. IWBI -- INTERNATIONAL WELL BUILDING INSTITUTE

PPPPPPP. KCMA -- KITCHEN CABINET MANUFACTURERS ASSOCIATION

QQQQQQQ. LIA -- LEAD INDUSTRIES ASSOCIATION, INC.

RRRRRRR. LONMARK -- LONMARK INTERNATIONAL

SSSSSSS. LPI -- LIGHTNING PROTECTION INSTITUTE

TTTTTTT. MBMA -- METAL BUILDING MANUFACTURERS ASSOCIATION

UUUUUUU. M-H -- MCGRAW-HILL BOOK COMPANY

VVVVVVV. MFMA -- MAPLE FLOORING MANUFACTURERS ASSOCIATION

WWWWWWW. MFMA -- METAL FRAMING MANUFACTURERS ASSOCIATION

XXXXXXX. MIAMI -- MIAMI-DADE COUNTY

YYYYYYY. ML/SFA -- METAL LATH/STEEL FRAMING ASSOCIATION - See NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS

ZZZZZZZ. MODBUS ORGANIZATION

AAAAAAAA. MPI -- MASTER PAINTERS INSTITUTE (MASTER PAINTERS AND DECORATORS ASSOCIATION)

BBBBBBBB. MMSA -- MATERIALS AND METHODS STANDARDS ASSOCIATION

CCCCCCCC. MSS -- MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY, INC.

DDDDDDDD. NAA -- NATIONAL ARBORIST ASSOCIATION

EEEEEEEE. NAAMM -- THE NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS

FFFFFFFF. NACE -- NACE INTERNATIONAL

GGGGGGGG. NADCA -- NATIONAL AIR DUCT CLEANING ASSOCIATION

HHHHHHHH. NAGDM -- NATIONAL ASSOCIATION OF GARAGE DOOR MANUFACTURERS

IIIIIIII. NAMM -- NATIONAL ASSOCIATION OF MIRROR MANUFACTURERS

JJJJJJJJ. NASSPA -- NORTH AMERICAN STEEL SHEET PILE ASSOCIATION

KKKKKKKK. NBBI -- THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

LLLLLLLL. NBGQA -- NATIONAL BUILDING GRANITE QUARRIES ASSOCIATION, INC.

MMMMMMMM. NBI -- NEW BUILDINGS INSTITUTE

NNNNNNNN. NCAA -- NATIONAL COLLEGIATE ATHLETIC ASSOCIATION

OOOOOOOO. NCMA -- NATIONAL CONCRETE MASONRY ASSOCIATION

PPPPPPPP. NCWPB - NATIONAL CERTIFIED PIPE WELDING BUREAU

QQQQQQQQ. NCRP -- NATIONAL COUNCIL ON RADIATION PROTECTION AND MEASUREMENTS

RRRRRRRR. NEBB -- NATIONAL ENVIRONMENTAL BALANCING BUREAU

SSSSSSSS. NECA -- NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION

TTTTTTTT. NEII -- NATIONAL ELEVATOR INDUSTRY, INC.

UUUUUUUU. NELMA -- NORTHEASTERN LUMBER MANUFACTURERS ASSOCIATION, INC.

VVVVVVVV. NEMA -- NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

WWWWWWWW. NETA -- INTERNATIONAL ELECTRICAL TESTING ASSOCIATION

XXXXXXXX. NFHS -- NATIONAL FEDERATION OF STATE HIGH SCHOOL ASSOCIATIONS:

YYYYYYYY. NFPA -- NATIONAL FIRE PROTECTION ASSOCIATION

ZZZZZZZZ. NFRC -- NATIONAL FENESTRATION RATING COUNCIL, INC.

AAAAAAAAA. NGA -- National Glass Association

BBBBBBBBB. NHLA -- NATIONAL HARDWOOD LUMBER ASSOCIATION

CCCCCCCCC. NIBS -- NATIONAL INSTITUTE OF BUILDING SCIENCES

DDDDDDDDD. NIST -- NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (U.S. DEPARTMENT OF COMMERCE)

EEEEEEEEE. NLA -- NATIONAL LIME ASSOCIATION

FFFFFFFFF. NLGA -- NATIONAL LUMBER GRADES AUTHORITY (CANADA)

GGGGGGGGG. NOFMA -- NATIONAL OAK FLOORING MANUFACTURERS ASSOCIATION

HHHHHHHHH. NPA -- NATIONAL PARTICLEBOARD ASSOCIATION

IIIIIIIII. NPCA -- NATIONAL PAINT AND COATINGS ASSOCIATION

JJJJJJJJJ. NRCA -- NATIONAL ROOFING CONTRACTORS ASSOCIATION

KKKKKKKKK. NRMCA -- NATIONAL READY MIXED CONCRETE ASSOCIATION

LLLLLLLLL. NSF -- NSF INTERNATIONAL (THE PUBLIC HEALTH AND SAFETY ORGANIZATION)

MMMMMMMMM. NSI -- NATURAL STONE INSTITUTE

NNNNNNNNN. NSPI -- NATIONAL SPA AND POOL INSTITUTE

OOOOOOOOO. NSSA - National Storm Shelter Association

PPPPPPPPP. NSWMA -- NATIONAL SOLID WASTES MANAGEMENT ASSOCIATION

QQQQQQQQQ. NTMA -- NATIONAL TERRAZZO AND MOSAIC ASSOCIATION, INC., THE

RRRRRRRRR. NTMA -- NATIONAL TILE AND MARBLE ASSOCIATION

SSSSSSSSS. NWFA -- NATIONAL WOOD FLOORING ASSOCIATION

TTTTTTTTT. NWWDA -- NATIONAL WOOD WINDOW AND DOOR ASSOCIATION (name changed to WDMA)

UUUUUUUUU. ODVA -- OPEN DEVICENET VENDOR ASSOCIATION, INC.

VVVVVVVVV. OEKO-TEX -- OEKO-TEX SERVICE GmbH

WWWWWWWWW. OPC -- OPEN PLATFORM COMMUNICATIONS FOUNDATION

XXXXXXXXX. ORACLE -- ORACLE INTEGRATED CLOUD APPLICATIONS & PLATFORM SERVICES

YYYYYYYYY. OWMA -- OPERABLE WALL MANUFACTURERS ASSOCIATION

ZZZZZZZZZ. PCA -- PORTLAND CEMENT ASSOCIATION

AAAAAAAAAA. PCI -- PRECAST/PRESTRESSED CONCRETE INSTITUTE

BBBBBBBBBB. PDCA -- PAINTING AND DECORATING CONTRACTORS OF AMERICA

CCCCCCCCCC. PDI -- PLUMBING AND DRAINAGE INSTITUTE

DDDDDDDDDD. PECI - PORTLAND ENERGY CONSERVATION, INC.

EEEEEEEEEE. PEI -- PORCELAIN ENAMEL INSTITUTE

FFFFFFFFFF. PHCC -- PLUMBING HEATING COOLING CONTRACTORS ASSOCIATION

GGGGGGGGGG. PIP -- Process Industry Practices

HHHHHHHHHH. PPI -- PLASTICS PIPE INSTITUTE

IIIIIIIIII. PTI -- POST-TENSIONING INSTITUTE

JJJJJJJJJJ. QAI -- QAI Laboratories

KKKKKKKKKK. RCSC -- RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

LLLLLLLLLL. RIS -- REDWOOD INSPECTION SERVICE

MMMMMMMMMM. RFCI -- RESILIENT FLOOR COVERING INSTITUTE

NNNNNNNNNN. RTI - ROOF TILE INSTITUTE

OOOOOOOOOO. SAE -- SAE INTERNATIONAL

PPPPPPPPPP. SBCA -- Structural Building Components Association

QQQQQQQQQQ. SBCCI -- SOUTHERN BUILDING CODE CONGRESS INTERNATIONAL, INC.

RRRRRRRRRR. SCAQMD -- SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

SSSSSSSSSS. SCAQMD 1113 - Architectural Coatings; 1977, with Amendment (2016).

TTTTTTTTTT. SCMA -- SOUTHERN CYPRESS MANUFACTURERS ASSOCIATION

UUUUUUUUUU. SCS - SCIENTIFIC CERTIFICATION SYSTEMS

VVVVVVVVVV. SCTE -- SOCIETY OF CABLE TELECOMMUNICATIONS ENGINEERS

WWWWWWWWWW. SDI -- STEEL DECK INSTITUTE

XXXXXXXXXX. SDI -- STEEL DOOR INSTITUTE

YYYYYYYYYY. SEFA -- SCIENTIFIC EQUIPMENT AND FURNITURE ASSOCIATION

ZZZZZZZZZZ. SEMI -- SEMICONDUCTOR EQUIPMENT AND MATERIALS INSTITUTE

AAAAAAAAAA. SIGMA -- SEALED INSULATING GLASS MANUFACTURERS ASSOCIATION (SEE IGMA)

BBBBBBBBBB. SJI -- STEEL JOIST INSTITUTE

CCCCCCCCCC. SMA -- SCREEN MANUFACTURERS ASSOCIATION

DDDDDDDDDD. SMA -- STUCCO MANUFACTURERS ASSOCIATION, INC.

EEEEEEEEEE. SMACNA -- SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION, INC.

FFFFFFFFFF. SPIB -- SOUTHERN PINE INSPECTION BUREAU, INC.

GGGGGGGGGG. SPRI -- SINGLE PLY ROOFING INDUSTRY

HHHHHHHHHH. SRI -- STEEL RECYCLING INSTITUTE

IIIIIIIIII. SSPC -- SOCIETY FOR PROTECTIVE COATINGS

JJJJJJJJJJ. STC -- SYNTHETIC TURF COUNCIL

KKKKKKKKKK. STI -- STEEL TANK INSTITUTE

LLLLLLLLLL. SWI -- STEEL WINDOW INSTITUTE

MMMMMMMMMM. SWRI -- SEALANT, WATERPROOFING AND RESTORATION INSTITUTE

NNNNNNNNNN. TCNA -- TILE COUNCIL OF NORTH AMERICA, INC.

OOOOOOOOOO. TDI -- TEXAS DEPARTMENT OF INSURANCE

PPPPPPPPPP. TIA -- TELECOMMUNICATIONS INDUSTRY ASSOCIATION

QQQQQQQQQQ. TIMA -- TIMA

RRRRRRRRRR. TMS -- THE MASONRY SOCIETY

SSSSSSSSSS. TPI -- TRUSS PLATE INSTITUTE

TTTTTTTTTT. TPI -- TURFGRASS PRODUCERS INTERNATIONAL

UUUUUUUUUU. UL -- UNDERWRITERS LABORATORIES INC.

VVVVVVVVVV. ULC -- UNDERWRITERS' LABORATORIES OF CANADA

WWWWWWWWWW. USGBC -- U.S. GREEN BUILDING COUNCIL

XXXXXXXXXX. VSI -- VINYL SIDING INSTITUTE, A DIVISION OF THE SOCIETY OF THE PLASTICS INDUSTRY, INC.

YYYYYYYYYY. W3C SSG - Web of Services Standards Collection (HTTP, XML, WSDL, UDDI, and others);Current Edition.

ZZZZZZZZZZ. WA -- World Athletics

AAAAAAAAAA. WCLIB -- WEST COAST LUMBER INSPECTION BUREAU

BBBBBBBBBB. WCMA -- WINDOW COVERING MANUFACTURERS ASSOCIATION

CCCCCCCCCC. WDMA -- WINDOW AND DOOR MANUFACTURERS ASSOCIATION (formerly NWWDA)

DDDDDDDDDD. WI -- WOODWORK INSTITUTE

EEEEEEEEEE. WMMPA -- WOOD MOULDING AND MILLWORK PRODUCERS ASSOCIATION

FFFFFFFFFF. WRCLA -- WESTERN RED CEDAR LUMBER ASSOCIATION

GGGGGGGGGG. WWPA -- WESTERN WOOD PRODUCTS ASSOCIATION

PART 3 UNITED STATES GOVERNMENT AND RELATED AGENCIES DOCUMENTS

3.01 WHERE ABBREVIATIONS AND ACRONYMS ARE USED IN SPECIFICATIONS OR OTHER CONTRACT DOCUMENTS, THEY ARE TO MEAN THE RECOGNIZED NAME OF THE ENTITIES IN THE FOLLOWING LIST. INFORMATION IS SUBJECT TO CHANGE AND IS UP TO DATE AS OF THE DATE OF THE CONTRACT DOCUMENTS.

A. ATBCB -- US ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD (THE ACCESS BOARD)

B. CEQ -- Council on Environmental Quality Guidance

C. CFR -- CODE OF FEDERAL REGULATIONS

D. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

E. COE -- CORPS OF ENGINEERS, U.S. ARMY

F. CPSC -- CONSUMER PRODUCTS SAFETY COMMISSION

G. DAAB -- State of Delaware; Delaware Arctitectural Accessibility Board.

H. DelDOT -- State of Delaware; Department of Transportation.

I. DFM -; State of Delaware; Office of Management and Budget; Division of Facilities Management.

J. DHSS -- State of Delaware; Department of Health and Social Services,

K. DOA -- State of Delaware; Department of Agriculture.

L. DOC -- State of Delaware; Department of Correction.

M. DOE -- State of Delaware; Department of Education.

N. DOF -- State of Delaware; Department of Finance.

O. DOI -- State of Delaware; Department of Insurance.

P. DOJ -- State of Delaware; Department of Justice.
Q. DOL -- State of Delaware; Department of Labor.
R. DOS -- State of Delaware; Department of State.
S. DOS -- UNITED STATES DEPARTMENT OF STATE
T. DTI -- State of Delaware; Department of Technology and Information.
U. DSHS -- State of Delaware; Department of Safety and Homeland Security.
V. DSP -- State of Delaware; Delaware State Police.
W. EPA -- ENVIRONMENTAL PROTECTION AGENCY
X. FAA -- FEDERAL AVIATION ADMINISTRATION
Y. FDA -- FOOD AND DRUG ADMINISTRATION
Z. FEMA -- U.S. FEDERAL EMERGENCY MANAGEMENT AGENCY
AA. FHWA -- FEDERAL HIGHWAY ADMINISTRATION
BB. FS -- FEDERAL SPECIFICATIONS AND STANDARDS (General Services Administration)
CC. GSA -- U.S. GENERAL SERVICES ADMINISTRATION
DD. GSS -- State of Delaware; Office of Management and Budget; Government Support Services.
EE. HHS -- U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, CENTERS FOR DISEASE CONTROL AND PREVENTION
FF. MIL -- MILITARY SPECIFICATIONS AND STANDARDS
GG. NASEM -- NATIONAL ACADEMIES OF SCIENCE, ENGINEERING, AND MEDICINE
HH. NCSC -- NATIONAL COUNTERINTELLIGENCE AND SECURITY CENTER
II. NIJ -- NATIONAL INSTITUTE OF JUSTICE (DEPT. OF JUSTICE)
JJ. NPS -- NATIONAL PARK SERVICE (DEPT. OF THE INTERIOR)
KK. NSA -- NATIONAL SECURITY AGENCY
LL. OMB -- State of Delaware; Office of Management and Budget.
MM. PS -- PRODUCT STANDARDS
NN. PS 20 - American Softwood Lumber Standard; 2025.
OO. USAB -- UNITED STATES ACCESS BOARD
PP. USC -- UNITED STATES CODE
QQ. USDA -- UNITED STATES DEPARTMENT OF AGRICULTURE
RR. USDHUD -- UNITED STATES DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
SS. USGS -- UNITED STATES GEOLOGICAL SURVEY

END OF SECTION

SECTION 01 45 33
CODE-REQUIRED SPECIAL INSPECTIONS AND PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Code-required special inspections.

B. Testing services incidental to special inspections.

C. Submittals.

D. Manufacturers' field services.

E. Fabricators' field services.

1.02 DEFINITIONS

A. Code or Building Code: ICC (IBC), International Building Code, most recent edition adopted by authority having jurisdiction, including all applicable amendments and supplements without limitation, and specifically Chapter 17 - Special Inspections and Tests.

B. Authority Having Jurisdiction (AHJ): Agency or individual officially empowered to enforce the building, fire and life safety code requirements of the permitting jurisdiction in which the Project is located.

C. Special Inspections and Tests: Inspections and testing of materials, installation, fabrication, erection, or placement of components and connections mandated by Building Code to safeguard public welfare.

1. Special inspections and tests are separate from and independent of tests and inspections conducted by Owner or Contractor for purposes of quality assurance and contract administration.

1.03 REFERENCE STANDARDS

A. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2025b.

B. IAS AC89 - Accreditation Criteria for Testing Laboratories; 2021.

C. IAS AC291 - Accreditation Criteria for Special Inspection Agencies AC291; 2025.

D. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Fabricator's Inspection Reports: When required by AHJ, submit reports to Architect and AHJ.

1.05 SPECIAL INSPECTION AND TESTING AGENCY

A. Owner or Architect to employ services of Special Inspection Agency to perform inspections and associated testing and sampling in accordance with ASTM E329 and required by building code.

B. Special Inspection Agency may delegate to independent testing agency to perform testing and sampling associated with special inspections and required by building code.

C. Employment of agency in no way relieves Contractor of obligation to perform work in accordance with requirements of contract documents.

1.06 TESTING AND INSPECTION AGENCIES

A. Owner or Architect may employ services of independent testing agency to perform additional testing and sampling required by contract documents or associated with special inspections but not required by building code.

B. Employment of agency in no way relieves Contractor of obligation to perform work in accordance with requirements of contract documents.

1.07 QUALITY ASSURANCE

A. Special Inspection Agency Qualifications:
   1. Independent firm specializing in performing testing and inspections of the type specified in this section.
   2. Accredited by IAS according to IAS AC291.

B. Testing Agency Qualifications:
   1. Independent firm specializing in performing testing and inspections of the type specified in this section.
   2. Accredited by IAS according to IAS AC89.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 SPECIAL INSPECTIONS AND TESTING

A. The Code requires special inspections and testing of certain materials, components, assemblies, and connections used in constructing the project. Special inspections and testing will be performed in accordance with the Code.

B. Special inspections and testing will be performed in accordance with the Code for the following materials and project components:
   1. Steel.
   2. Concrete.
   3. Masonry.
   4. Wood.
   5. Soils.
   6. Cast-in-place deep foundations.
   7. Fabricated items.
   8. Exterior insulation and finish systems (EIFS).
   9. Fire-resistant penetrations and joints.
   10. Smoke control testing.
   11. Seismic resistance.
   12. Wind resistance.
   13. Structural observations required by ICC (IBC) section 1704.6.
   14. Special cases as determined by building official and required by ICC (IBC) section 1705.1.

3.02 SPECIAL INSPECTION AGENCY DUTIES AND RESPONSIBILITIES

A. Special Inspection Agency shall:
   1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
   2. Perform specified sampling and testing of products in accordance with specified reference standards.
   3. Ascertain compliance of materials and products with requirements of Contract Documents.
   4. Promptly notify Architect and Contractor of observed irregularities or non-compliance of work or products.
   5. Perform additional tests and inspections required by Architect.
   6. Submit reports of all tests or inspections specified.

B. Limits on Special Inspection Agency Authority:
   1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency may not approve or accept any portion of the work.
   3. Agency may not assume any duties of Contractor.
   4. Agency has no authority to stop the work.

C. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.

D. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.03 TESTING AGENCY DUTIES AND RESPONSIBILITIES

A. Testing Agency Duties:
   1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
   2. Perform specified sampling and testing of products in accordance with specified standards.
   3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   4. Promptly notify Architect and Contractor of observed irregularities or non-compliance of work or products.
   5. Perform additional tests and inspections required by Architect.
   6. Submit reports of all tests or inspections specified.

B. Limits on Testing or Inspection Agency Authority:
   1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency may not approve or accept any portion of the work.
   3. Agency may not assume any duties of Contractor.
   4. Agency has no authority to stop the work.

C. On instructions by Architect, perform re-testing required because of non-compliance with specified requirements, using the same agency.

D. Contractor will pay for re-testing required because of non-compliance with specified requirements.

3.04 CONTRACTOR DUTIES AND RESPONSIBILITIES

A. Contractor Responsibilities, General:
   1. Deliver to agency at designated location, adequate samples of materials for special inspections that require material verification.
   2. Cooperate with agency and laboratory personnel; provide access to approved documents at project site, to the work, to manufacturers' facilities, and to fabricators' facilities.
   3. Provide incidental labor and facilities:
      a. To provide access to work to be tested or inspected.
      b. To obtain and handle samples at the site or at source of Products to be tested or inspected.
      c. To facilitate tests or inspections.
      d. To provide storage and curing of test samples.
   4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing or inspection services.
   5. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

3.05 FABRICATORS' FIELD SERVICES

A. When required by AHJ or specified in individual specification sections, require fabricators to provide qualified staff personnel to observe site conditions, installation conditions, quality of workmanship, and start-up of equiment and systems and to initiate instructions when necessary.

B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

END OF SECTION

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SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary utilities.

B. Temporary sanitary facilities.

C. Security requirements.

D. Vehicular access and parking.

E. Waste removal facilities and services.

F. Field offices.

1.02 RELATED REQUIREMENTS

A. Section 01 35 53 - Security Procedures

B. Section 01 51 00 - Temporary Utilities.

C. Section 01 52 13 - Field Offices and Sheds.

D. Section 01 55 00 - Vehicular Access and Parking.

E. Section 01 58 13 - Temporary Project Signage.

1.03 REFERENCE STANDARDS

A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

B. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.

1.04 TEMPORARY UTILITIES - SEE SECTION 01 51 00

A. Owner will provide the following:
   1. Electrical power and metering, consisting of connection to existing facilities.
   2. Water supply, consisting of connection to existing facilities.

B. Existing facilities may not be used.

C. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.05 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

B. Maintain daily in clean and sanitary condition.

1.06 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.07 INTERIOR ENCLOSURES

A. Provide temporary partitions to separate work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas, and to prevent damage to existing materials and equipment.

B. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces:
   1. Maximum flame spread rating of 75 in accordance with ASTM E84.

1.08 SECURITY - SEE SECTION 01 35 53

A. Provide security and facilities to protect Work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

B. Coordinate with Owner's security program.

1.09 VEHICULAR ACCESS AND PARKING - SEE SECTION 01 55 00

A. Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.

B. Coordinate access and haul routes with governing authorities and Owner.

C. Provide and maintain access to fire hydrants, free of obstructions.

D. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

1.10 WASTE REMOVAL

A. See Section 01 74 19 - Construction Waste Management and Disposal, for additional requirements.

B. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

C. Provide containers with lids. Remove trash from site periodically.

D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.11 PROJECT SIGNS - SEE SECTION 01 58 13

1.12 FIELD OFFICES - SEE SECTION 01 52 13

A. Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack, and drawing display table.

B. Provide space for Project meetings, with table and chairs to accommodate 6 persons.

C. Locate offices a minimum distance of 30 feet (10 m) from existing and new structures.

1.13 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Date of Substantial Completion inspection.

B. Remove underground installations to a minimum depth of 2 feet (600 mm). Grade site as indicated.

C. Clean and repair damage caused by installation or use of temporary work.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 51 00
TEMPORARY UTILITIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary Utilities: Provision of electricity, lighting, heat, ventilation, and water.

1.02 RELATED REQUIREMENTS

A. Section 01 50 00 - Temporary Facilities and Controls:
   1. Temporary telecommunications services for administrative purposes.
   2. Temporary sanitary facilities required by law.

1.03 REFERENCE STANDARDS

A. 29 CFR 1926 - Safety and Health Regulations for Construction; Current Edition.

1.04 TEMPORARY ELECTRICITY

A. Cost: By Contractor.

B. Connect to Owner's existing power service.
   1. Do not disrupt Owner's need for continuous service.
   2. Exercise measures to conserve energy.

C. Provide temporary electric feeder from existing building electrical service at field office.

D. Complement existing power service capacity and characteristics as required.

E. Permanent convenience receptacles may be utilized during construction.

F. Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.

1.05 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Provide and maintain LED, compact fluorescent, or high-intensity discharge lighting as suitable for the application for construction operations in accordance with requirements of 29 CFR 1926 and authorities having jurisdiction.

B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

C. Maintain lighting and provide routine repairs.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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SECTION 01 52 13
FIELD OFFICES AND SHEDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary field offices for use of Contractor.

B. Maintenance and removal.

1.02 RELATED REQUIREMENTS

A. Section 01 10 00 - Summary: use of premises and responsibility for providing field offices.

B. Section 01 50 00 - Temporary Facilities and Controls:
   1. Temporary telecommunications services for administrative purposes.
   2. Temporary sanitary facilities required by law.

C. Section 01 55 00: Parking and access to field offices.

1.03 USE OF EXISTING FACILITIES

A. Existing facilities shall not be used for field offices.

1.04 USE OF PERMANENT FACILITIES

A. Permanent facilities shall not be used for field offices.

PART 2 PRODUCTS

2.01 MATERIALS, EQUIPMENT, FURNISHINGS

A. Materials, Equipment, Furnishings: Serviceable, new or used, adequate for required purpose.

2.02 CONSTRUCTION

A. Portable or mobile buildings, or buildings constructed with floors raised above ground, securely fixed to foundations, with steps and landings at entrance doors.

B. Temperature Transmission Resistance of Floors, Walls, and Ceilings: Compatible with occupancy requirements.

C. Exterior Materials: Weather resistant, finished in one color.

D. Interior Materials in Offices: Sheet type materials for walls and ceilings, prefinished or painted; resilient floors and bases.

E. Lighting for Offices: 50 fc (538 lx) at desk top height, exterior lighting at entrance doors.

F. Fire Extinguishers: Appropriate type fire extinguisher at each office.

2.03 ENVIRONMENTAL CONTROL

A. Heating, Cooling, and Ventilating: Automatic equipment to maintain comfort conditions.

2.04 CONTRACTOR OFFICE AND FACILITIES

A. Size: For Contractor's needs and to provide space for project meetings.

B. Furnishings in Meeting Area: Conference table and chairs to seat at least eight persons; racks and files for Contract Documents, submittals, and project record documents.

C. Other Furnishings: Contractor's option.

D. Equipment: Six adjustable band protective helmets for visitors, one 10 inch (250 mm) outdoor weather thermometer .

PART 3 EXECUTION

3.01 PREPARATION

A. Fill and grade sites for temporary structures to provide drainage away from buildings.

3.02 INSTALLATION

A. Install office spaces ready for occupancy 15 days after date fixed in Notice to Proceed.

3.03 MAINTENANCE AND CLEANING

A. Weekly janitorial services for offices; periodic cleaning and maintenance for offices.

B. Maintain approach walks free of mud, water, and snow.

3.04 REMOVAL

A. At completion of Work remove buildings, foundations, utility services, and debris. Restore areas.

END OF SECTION

SECTION 01 55 00
VEHICULAR ACCESS AND PARKING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Access roads.

B. Parking.

C. Existing pavements and parking areas.

D. Permanent pavements and parking facilities.

E. Construction parking controls.

F. Traffic signs and signals.

G. Maintenance.

H. Removal, repair.

1.02 RELATED REQUIREMENTS

A. Section 01 10 00 - Summary: For access to site and occupancy.

B. Section 01 58 13 - Temporary Project Signage: Post Mounted and Wall Mounted Traffic Control and Informational Signs.

PART 2 PRODUCTS

2.01 MATERIALS

A. Temporary Construction: Contractor's option.

2.02 SIGNS, SIGNALS, AND DEVICES

A. Stock Post Mounted and Wall Mounted Traffic Control and Informational Signs:

B. Traffic Cones and Drums, and Lights: As approved by local jurisdictions.

PART 3 EXECUTION

3.01 PREPARATION

A. Clear areas, provide surface and storm drainage of road, parking, area premises, and adjacent areas.

3.02 ACCESS ROADS

A. Use of 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.

3.03 PARKING

A. Use of designated areas of existing parking facilities by construction personnel is permitted.

B. Arrange for temporary parking areas to accommodate use of construction personnel.

3.04 CONSTRUCTION PARKING CONTROL

A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and Owner's operations.

B. Monitor parking of construction personnel's vehicles in existing facilities. Maintain vehicular access to and through parking areas.

C. Prevent parking on or adjacent to access roads or in non-designated areas.

3.05 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.

3.06 MAINTENANCE

A. Maintain traffic and parking areas in a sound condition.

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.

3.07 REMOVAL, REPAIR

A. Repair existing 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

SECTION 01 57 19
TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Construction procedures to promote adequate indoor air quality after construction.

1.02 PROJECT GOALS

A. Dust and Airborne Particulates: Prevent deposition of dust and other particulates in HVAC ducts and equipment.
   1. Cleaning of ductwork is not contemplated under this Contract.
   2. Contractor shall bear the cost of cleaning required due to failure to protect ducts and equipment from construction dust.

B. Airborne Contaminants: Procedures and products have been specified to minimize indoor air pollutants.
   1. Furnish products meeting the specifications.
   2. Avoid construction practices that could result in contamination of installed products leading to indoor air pollution.

1.03 RELATED REQUIREMENTS

A. Section 01 40 00 - Quality Requirements: Testing and inspection services.

1.04 REFERENCE STANDARDS

A. ASHRAE Std 52.2 - Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size; 2025.

B. SMACNA (OCC) - IAQ Guidelines for Occupied Buildings Under Construction; 2007.

1.05 DEFINITIONS

A. Adsorptive Materials: Gypsum board, acoustical ceiling tile and panels, carpet and carpet tile, fabrics, fibrous insulation, and other similar products.

B. Contaminants: Gases, vapors, regulated pollutants, airborne mold and mildew, and the like, as specified.

C. Particulates: Dust, dirt, and other airborne solid matter.

D. Wet Work: Concrete, plaster, coatings, and other products that emit water vapor or volatile organic compounds during installation, drying, or curing.

1.06 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Indoor Air Quality Management Plan: Describe, in detail, measures to be taken to promote adequate indoor air quality upon completion; use SMACNA (OCC) as a guide.
   1. Submit not less than 60 days before enclosure of building.
   2. Identify potential sources of odor and dust.
   3. Identify construction activities likely to produce odor or dust.
   4. Identify areas of project potentially affected, especially occupied areas.
   5. Evaluate potential problems by severity and describe methods of control.
   6. Describe construction ventilation to be provided, including type and duration of ventilation, use of permanent HVAC systems, types of filters and schedule for replacement of filters.
   7. Describe cleaning and dust control procedures.

C. Interior Finishes Installation Schedule: Identify each interior finish that either generates odors, moisture, or vapors or is susceptible to adsorption of odors and vapors, and indicate air handling zone, sequence of application, and curing times.

D. Duct and Terminal Unit Inspection Report.

1.07 QUALITY ASSURANCE

A. Testing and Inspection Agency Qualifications: Independent testing agency having minimum of 5 years experience in performing the types of testing specified.

PART 2 PRODUCTS

2.01 MATERIALS

A. Low VOC Materials: See other sections for specific requirements for materials with low VOC content.

B. Auxiliary Air Filters: MERV of 8, minimum, when tested in accordance with ASHRAE Std 52.2.

PART 3 EXECUTION

3.01 CONSTRUCTION PROCEDURES

A. Prevent the absorption of moisture and humidity by adsorptive materials by:
   1. Delivery and storage of such materials in fully sealed moisture-impermeable packaging.
   2. Provide sufficient ventilation for drying within reasonable time frame.

B. Do not store construction materials or waste in mechanical or electrical rooms.

C. Prior to use of return air ductwork without intake filters clean up and remove dust and debris generated by construction activities.
   1. Inspect duct intakes, return air grilles, and terminal units for dust.
   2. Clean plenum spaces, including top sides of lay-in ceilings, outsides of ducts, tops of pipes and conduit.
   3. Clean tops of doors and frames.
   4. Clean mechanical and electrical rooms, including tops of pipes, ducts, and conduit, equipment, and supports.
   5. Clean return plenums of air handling units.
   6. Remove intake filters last, after cleaning is complete.

D. Do not perform dusty or dirty work after starting use of return air ducts without intake filters.

E. Use other relevant recommendations of SMACNA (OCC) for avoiding unnecessary contamination due to construction procedures.

END OF SECTION

SECTION 01 58 13
TEMPORARY PROJECT SIGNAGE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project informational signs.

1.02 RELATED REQUIREMENTS

A. Section 01 10 00 - Summary: Responsibility to provide signs.

1.03 QUALITY ASSURANCE

A. Sign Company: Experienced as a professional sign fabricator for minimum three years.

B. Finishes, Painting: Adequate to withstand weathering, fading, and chipping for duration of construction.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Shop Drawing: Show content, layout, lettering, color, and sizes

PART 2 PRODUCTS

2.01 SIGN MATERIALS

A. Structure and Framing: New, wood, structurally adequate.

B. Sign Surfaces: Exterior grade plywood with medium density overlay, minimum 3/4 inch (19 mm) thick, standard large sizes to minimize joints.

C. Rough Hardware: Galvanized.

D. Paint and Primers: Exterior quality, two coats; sign background of color as selected.

E. Lettering: Exterior quality paint, contrasting colors.

2.02 PROJECT INFORMATIONAL SIGNS

A. Painted informational signs of same colors and lettering as Project Identification sign, or standard products; size lettering to provide legibility at 100 foot (30 m) distance.

B. Provide at each field office, storage shed, and directional signs to direct traffic into and within site. Relocate as Work progress requires.

C. Provide municipal traffic agency directional traffic signs to and within site.

PART 3 EXECUTION

3.01 INSTALLATION

A. Erect at designated location.

B. Erect supports and framing on secure foundation, rigidly braced and framed to resist wind loadings.

C. Install sign surface plumb and level, with butt joints. Anchor securely.

D. Paint exposed surfaces of sign, supports, and framing.

3.02 MAINTENANCE

A. Maintain signs and supports, clean anf repair deterioration and damage.

3.03 REMOVAL

A. Remove signs, framing, supports, and foundations at completion of Project and restore the area.

END OF SECTION

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SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Re-use of existing products.

C. Transportation, handling, storage and protection.

D. Product option requirements.

E. Substitution limitations.

F. Procedures for Owner-supplied products.

G. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

A. Section 01 10 00 - Summary: Lists of products to be removed from existing building.

B. Section 01 10 00 - Summary: Identification of Owner-supplied products.

C. Section 01 25 00 - Substitution Procedures: Substitutions made during procurement and/or construction phases.

D. Section 01 40 00 - Quality Requirements: Product quality monitoring.

E. Section 01 61 16 - Volatile Organic Compound (VOC) Content Restrictions: Requirements for VOC-restricted product categories.

F. Section 01 74 19 - Construction Waste Management and Disposal: Waste disposal requirements potentially affecting product selection, packaging and substitutions.

1.03 REFERENCE STANDARDS

1.04 SUBMITTALS

A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
   1. Submit within 15 days after date of Agreement.
   2. For products specified only by reference standards, list applicable reference standards.

B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
   1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

1.05 QUALITY ASSURANCE

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by Contract Documents.

B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

C. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

D. Specific Products to be Reused: The reuse of certain materials and equipment already existing on the project site is required.
   1. See Section 01 10 00 for list of items required to be salvaged for reuse and relocation.
   2. If reuse of other existing materials or equipment is desired, submit substitution request.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by Contract Documents.

B. See Section 01 40 00 - Quality Requirements, for additional source quality control requirements.

C. Use of products having any of the following characteristics is not permitted:
   1. Made using or containing CFC's or HCFC's.
   2. Containing lead, cadmium, or asbestos.

D. Where other criteria are met, Contractor shall give preference to products that:
   1. If used on interior, have lower emissions, as defined in Section 01 61 16.
   2. If wet-applied, have lower VOC content, as defined in Section 01 61 16.

E. Provide interchangeable components by the same manufacture for components being replaced.

F. Cord and Plug: Provide minimum 6 foot (2 m) cord and plug including grounding connector for connection to electric wiring system. Cord of longer length is specified in individual specification sections.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

A. See Section 01 25 00 - Substitution Procedures.

3.02 OWNER-SUPPLIED PRODUCTS

A. Owner's Responsibilities:
   1. Arrange for and deliver Owner reviewed shop drawings, product data, and samples, to Contractor.
   2. Arrange and pay for product delivery to site.
   3. On delivery, inspect products jointly with Contractor.
   4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
   5. Arrange for manufacturers' warranties, inspections, and service.

B. Contractor's Responsibilities:
   1. Review Owner reviewed shop drawings, product data, and samples.

2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
3. Handle, store, install and finish products.
4. Repair or replace items damaged after receipt.

3.03 TRANSPORTATION AND HANDLING

A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.

C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

D. Transport and handle products in accordance with manufacturer's instructions.

E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.

H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.04 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. See Section 01 74 19.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

G. Comply with manufacturer's warranty conditions, if any.

H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

I. Prevent contact with material that may cause corrosion, discoloration, or staining.

J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

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SECTION 01 61 16.01
ACCESSORY MATERIAL VOC CONTENT CERTIFICATION FORM

FORM

1.01 IDENTIFICATION:

A. Project Name: _____

B. Project No.: _____

C. Architect: _____

1.02 USE OF THIS FORM:

A. Because installers are allowed and directed to choose accessory materials suitable for the applicable installation, there is a possibility that such accessory materials might contain VOC content in excess of that permitted, especially where such materials have not been explicitly specified.

B. Contractor is required to obtain and submit this form from each installer of work on this project.

C. For each product category listed, circle the correct words in brackets: either [HAS] or [HAS NOT].

D. If any of these accessory materials has been used, attach to this form product data and MSDS sheet for each such product.

1.03 VOC CONTENT RESTRICTIONS ARE SPECIFIED IN SECTION 01 61 16.

2.01 PRODUCT CERTIFICATION

A. I certify that the installation work of my firm on this project:
   1. [HAS] [HAS NOT] required the use of any ADHESIVES.
   2. [HAS] [HAS NOT] required the use of any JOINT SEALANTS.
   3. [HAS] [HAS NOT] required the use of any PAINTS OR COATINGS.
   4. [HAS] [HAS NOT] required the use of any COMPOSITE WOOD or AGRIFIBER PRODUCTS.

B. Product data and MSDS sheets are attached.

3.01 CERTIFIED BY: (INSTALLER/MANUFACTURER/SUPPLIER FIRM)

A. Firm Name: _____

B. Print Name: _____

C. Signature: _____

D. Title: _____ (officer of company)

E. Date: _____

END OF SECTION

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SECTION 01 61 16
VOLATILE ORGANIC COMPOUND (VOC) CONTENT RESTRICTIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for Indoor-Emissions-Restricted products.

B. Requirements for VOC-Content-Restricted products.

C. Requirement for installer certification that they did not use any non-compliant products.

1.02 RELATED REQUIREMENTS

A. Section 01 30 00 - Administrative Requirements: Submittal procedures.

B. Section 01 40 00 - Quality Requirements: Procedures for testing and certifications.

C. Section 01 57 19 - Temporary Environmental Controls: Procedures and testing.

D. Section 01 60 00 - Product Requirements: Fundamental product requirements, substitutions and product options, delivery, storage, and handling.

E. Section 07 92 00 - Joint Sealants: Emissions-compliant sealants.

1.03 DEFINITIONS

A. Indoor-Emissions-Restricted Products: All products in the following product categories, whether specified or not:

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.

C. Interior of Building: Anywhere inside the exterior weather barrier.

D. Adhesives: All gunnable, trowelable, liquid-applied, and aerosol adhesives, whether specified or not; including flooring adhesives, resilient base adhesives, and pipe jointing adhesives.

E. Sealants: All gunnable, trowelable, and liquid-applied joint sealants and sealant primers, whether specified or not; including firestopping sealants and duct joint sealers.

F. 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. Concrete.
   2. Clay brick.
   3. Metals that are plated, anodized, or powder-coated.
   4. Glass.
   5. Ceramics.
   6. Solid wood flooring that is unfinished and untreated.

1.04 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 D3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings; 2025.

C. CARB (SCM) - Suggested Control Measure for Architectural Coatings; California Air Resources Board; 2020.

D. SCAQMD 1113 - Architectural Coatings; 1977, with Amendment (2016).

E. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022).

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements 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.

1.06 QUALITY ASSURANCE

A. 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. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

PART 2 PRODUCTS

2.01 MATERIALS

A. All Products: Comply with the most stringent of federal, State, and local requirements, or these specifications.

B. VOC-Content-Restricted Products: VOC content not greater than required by the following:
   1. Adhesives, Including Flooring Adhesives: SCAQMD 1168 Rule.
   2. Joint Sealants: SCAQMD 1168 Rule.
   3. Paints and Coatings: Each color; most stringent of the following:
      a. 40 CFR 59, Subpart D.
      b. SCAQMD 1113 Rule.
      c. CARB (SCM).

PART 3 EXECUTION

3.01 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 Owner.

B. Additional costs to restore indoor air quality due to installation of non-compliant products will be borne by Contractor.

END OF SECTION

SECTION 01 70 00
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, including selective demolition.

C. Pre-installation meetings.

D. Cutting and patching.

E. Cleaning and protection.

F. Starting of systems and equipment.

G. Demonstration and instruction of Owner personnel.

H. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

I. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

A. Section 01 10 00 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.

B. Section 01 30 00 - Administrative Requirements: Submittals procedures, Electronic document submittal service.

C. Section 01 40 00 - Quality Requirements: Testing and inspection procedures.

D. Section 01 50 00 - Temporary Facilities and Controls: Temporary exterior enclosures.

E. Section 01 50 00 - Temporary Facilities and Controls: Temporary interior partitions.

F. Section 01 51 00 - Temporary Utilities: Temporary heating, cooling, and ventilating facilities.

G. Section 01 57 13 - Temporary Erosion and Sediment Control: Additional erosion and sedimentation control requirements.

H. Section 01 74 19 - Construction Waste Management and Disposal: Additional procedures for trash/waste removal, recycling, salvage, and reuse.

I. Section 01 78 00 - Closeout Submittals: Project record documents, operation and maintenance data, warranties, and bonds.

J. Section 01 79 00 - Demonstration and Training: Demonstration of products and systems to be commissioned and where indicated in specific specification sections

K. Section 01 91 13 - General Commissioning Requirements: Contractor's responsibilities in regard to commissioning.

L. Section 02 41 00 - Demolition: Demolition of whole structures and parts thereof; site utility demolition.

M. Section 07 84 00 - Firestopping.

1.03 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. 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. Include design drawings and calculations for bracing and shoring.
2. Identify demolition firm and submit qualifications.
3. Include a summary of safety procedures.

C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
1. Structural integrity of any element of Project.
2. Integrity of weather exposed or moisture resistant element.
3. Efficiency, maintenance, or safety of any operational element.
4. Visual qualities of sight exposed elements.
5. Work of Owner or separate Contractor.
6. Include in request:
a. Identification of Project.
b. Location and description of affected work.
c. Necessity for cutting or alteration.
d. Description of proposed work and products to be used.
e. Effect on work of Owner or separate Contractor.
f. Written permission of affected separate Contractor.
g. Date and time work will be executed.

1.05 PROJECT CONDITIONS

A. Use of explosives is not permitted.

B. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

C. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
1. Provide dust-proof barriers between construction areas and areas continuing to be occupied by Owner.

D. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
1. At All Times: Excessively noisy tools and operations will not be tolerated inside the building at any time of day; excessively noisy includes jackhammers.
2. Indoors: Limit conduct of especially noisy interior work to times as agreed upon by the contractor and owner.

E. Pollution Control: Provide methods, means, and facilities to prevent contamination of the building atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.06 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Notify affected utility companies and comply with their requirements.

C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean-up of work of separate sections.

G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Architect four days in advance of meeting date.

D. Prepare agenda and preside at meeting:
   1. Review conditions of examination, preparation and installation procedures.
   2. Review coordination with related work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.05 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 alterations work constitutes acceptance of existing conditions.

B. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions.

C. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.
   2. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
   3. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

D. Services (Including but not limited to HVAC, Plumbing, Fire Protection, and Electrical): Remove, relocate, and extend existing systems to accommodate new construction.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
   2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
   3. 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.
      a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
      b. Provide temporary connections as required to maintain existing systems in service.
   4. Verify that abandoned services serve only abandoned facilities.
   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; patch holes left by removal using materials specified for new construction.

E. 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.

F. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
   1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.

2. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
3. Where a change of plane of 1/4 inch (6 mm) or more occurs in existing work, submit recommendation for providing a smooth transition for Architect review and request instructions.

G. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

H. Refinish existing surfaces as indicated:
1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.

I. Clean existing systems and equipment.

J. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

K. Do not begin new construction in alterations areas before demolition is complete.

L. Comply with all other applicable requirements of this section.

3.06 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. See Alterations article above for additional requirements.

C. Perform whatever cutting and patching is necessary to:
1. Complete the work.
2. Fit products together to integrate with other work.
3. Provide openings for penetration of mechanical, electrical, and other services.
4. Match work that has been cut to adjacent work.
5. Repair areas adjacent to cuts to required condition.
6. Repair new work damaged by subsequent work.
7. Remove samples of installed work for testing when requested.
8. Remove and replace defective and non-complying work.

D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

F. Restore work with new products in accordance with requirements of Contract Documents.

G. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

H. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 84 00, to full thickness of the penetrated element.

I. Patching:
1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
2. Match color, texture, and appearance.
3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.07 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

3.08 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Protect work from spilled liquids. If work is exposed to spilled liquids, immediately remove protective coverings, dry out work, and replace protective coverings.

G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.09 SYSTEM STARTUP

A. Coordinate with requirements of Section 01 91 13 - General Commissioning Requirements.

B. Coordinate schedule for start-up of various equipment and systems.

C. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

D. Verify that wiring and support components for equipment are complete and tested.

E. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

F. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.10 DEMONSTRATION AND INSTRUCTION

A. See Section 01 79 00 - Demonstration and Training.

3.11 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.12 FINAL CLEANING

A. Use cleaning materials that are nonhazardous.

B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces,

C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

E. Clean filters of operating equipment.

3.13 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.

B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.

C. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.

D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.

E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.

F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.

G. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.

H. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

3.14 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.

B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.

C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION

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SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes: Administrative and procedural requirements for construction waste management activities.

1.02 DEFINITIONS

A. Construction, Demolition, and Land clearing (CDL) Waste: Includes all non-hazardous solid wastes resulting from construction, remodeling, alterations, repair, demolition and land clearing. Includes material that is recycled, reused, salvaged or disposed as garbage.

B. Salvage: Recovery of materials for on-site reuse, sale or donation to a third party.

C. Reuse: Making use of a material without altering its form. Materials can be reused on-site or reused on other projects off-site. Examples include, but are not limited to the following: Crushing or grinding of concrete for use as sub-base material. Chipping of land clearing debris for use as mulch.

D. Recycling: The process of sorting, cleaning, treating, and reconstituting materials for the purpose of using the material in the manufacture of a new product.

E. Source-Separated CDL Recycling: The process of separating recyclable materials in separate containers as they are generated on the job-site. The separated materials are hauled directly to a recycling facility or transfer station.

F. Co-mingled CDL Recycling: The process of collecting mixed recyclable materials in one container on-site. The container is taken to a material recovery facility where materials are separated for recycling.

G. Approved Recycling Facility: Any of the following:
   1. A facility that can legally accept CDL waste materials for the purpose of processing the materials into an altered form for the manufacture of a new product
   2. Material Recovery Facility: A general term used to describe a waste-sorting facility. Mechanical, hand-separation, or a combination of both procedures, are used to recover.

H. Universal waste components (UWC) are as follows: electric motors, PCB ballasts, non PCB ballasts, capacitors, contactors, circuit breakers, elemental and liquid mercury containing articles, transformers, lead acid batteries, fluorescent light bulbs, and all HID light bulbs.

1.03 SUBMITTALS

A. Contractor shall develop a Waste Management Plan: Submit 3 copies of plan within 14 days of date established for the Notice to Proceed.

B. Contractor shall provide Waste Management Report: Concurrent with each Application for Payment, submit 3 copies of report.

1.04 PERFORMANCE REQUIREMENTS

A. General: Divert a minimum of 75% CDL waste, by weight, from the landfill by one, or a combination of the following activities:
   1. Salvage
   2. Reuse
   3. Source-Separated CDL Recycling
   4. Co-mingled CDL Recycling

B. CDL waste materials that can be salvaged, reused or recycled include, but are not limited to, the following:
   1. Acoustical ceiling tiles
   2. Asphalt
   3. Asphalt shingles
   4. Cardboard packaging

5. Carpet and carpet pad
6. Concrete
7. Drywall
8. Fluorescent lights and ballasts
9. Land clearing debris (vegetation, stumpage, dirt)
10. Metals
11. Paint (through hazardous waste outlets)
12. Wood
13. Plastic film (sheeting, shrink wrap, packaging)
14. Window glass
15. Wood
16. Field office waste, including office paper, aluminum cans, glass, plastic, and office cardboard.

1.05 QUALITY ASSURANCE

A. Waste Management Coordinator Qualifications: Experienced firm, with a record of successful waste management coordination of projects with similar requirements, that employs a LEED Accredited Professional, certified by the USGBC as waste management coordinator.

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

C. Regulatory Requirements: Conduct construction waste management activities in accordance with hauling and disposal regulations of all authorities having jurisdiction and all other applicable laws and ordinances.

D. Preconstruction Conference: Schedule and conduct meeting at Project site prior to construction activities.
   1. Attendees: Inform the following individuals, whose presence is required, of date and time of meeting.
      a. Owner
      b. Architect
      c. Contractor's superintendent
      d. Major subcontractors
      e. Waste Management Coordinator
      f. Other concerned parties.
   2. Agenda Items: 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.
      d. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
      e. Review waste management requirements for each trade.
   3. Minutes: Record discussion. Distribute meeting minutes to all participants.

1.06 WASTE MANAGEMENT PLAN – CONTACTOR SHALL DEVELOP AND DOCUMENT THE FOLLOWING:

A. Develop a plan to meet the requirements listed in this section at a minimum. Plan shall consist of waste identification, waste reduction plan and cost/revenue analysis. Distinguish between demolition and construction waste. Indicate quantities by weight throughout the plan.

B. Indicate anticipated types and quantities of demolition, site-cleaning and construction waste generated by the project. List all assumptions made for the quantities estimates.

C. List each type of waste and whether it will be salvaged, recycled, or disposed of in an landfill. The plan should included the following information:
   1. Types and estimated quantities, by weight, of CDL waste expected to be generated during demolition and construction.
   2. Proposed methods for CDL waste salvage, reuse, recycling and disposal during demolition including, but not limited to, one or more of the following:
      a. Contracting with a deconstruction specialist to salvage materials generated,
      b. Selective salvage as part of demolition contractor's work,
      c. Reuse of materials on-site or sale or donation to a third party.
   3. Proposed methods for salvage, reuse, recycling and disposal during construction including, but not limited to, one or more of the following:
      a. Requiring subcontractors to take their CDL waste to a recycling facility;
      b. Contracting with a recycling hauler to haul recyclable CDL waste to an approved recycling or material recovery facility;
      c. Processing and reusing materials on-site;
      d. Self-hauling to a recycling or material recovery facility.
   4. Name of recycling or material recovery facility receiving the CDL wastes.
   5. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on project site where materials separation will be located.

D. Cost/Revenue Analysis: 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. Include the following:
   1. Total quantity of waste.
   2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
   3. Total cost of disposal (with no waste management).
   4. Revenue from salvaged materials.
   5. Revenue from recycled materials.
   6. Savings in hauling and tipping fees by donating materials.
   7. Savings in hauling and tipping fees that are avoided.
   8. Handling and transportation costs. Including cost of collection containers for each type of waste.
   9. Net additional cost or net savings from waste management plan.

PART 2 PRODUCTS - NOT USED

PART 3 – EXECUTION

3.01 CONSTRUCTION WASTE MANAGEMENT, GENERAL

A. Provide containers for CDL waste that is to be recycled clearly labeled as such with a list of acceptable and unacceptable materials. The list of acceptable materials must be the same as the materials recycled at the receiving material recovery facility or recycling processor.

B. The collection containers for recyclable CDL waste must contain no more than 10% non-recyclable material, by volume.

C. Provide containers for CDL waste that is disposed in a landfill clearly labeled as such.

D. Use detailed material estimates to reduce risk of unplanned and potentially wasteful cuts.

E. To the greatest extent possible, include in material purchasing agreements a waste reduction provision requesting that materials and equipment be delivered in packaging made of recyclable material, that they reduce the amount of packaging, that packaging be taken back for reuse or recycling, and to take back all unused product. Insure that subcontractors require the same provisions in their purchase agreements.

F. Conduct regular visual inspections of dumpsters and recycling bins to remove contaminants.

3.02 SOURCE SEPARATION

A. General: Contractor shall separate recyclable materials from CDL waste to the maximum extent possible.

B. Separate recyclable materials by type.
   1. Provide containers, clearly labeled, by type of separated materials or provide other storage method for managing recyclable materials until they are removed from Project site.
   2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water and to minimize pest attraction. Cover to prevent windblown dust.
   3. Stockpile materials away from demolition area. Do not store within drip line of remaining trees.
   4. Store components off the ground and protect from weather.

3.03 CO-MINGLED RECYCLING

A. General: Do not put CDL waste that will be disposed in a landfill into a co-mingled CDL waste recycling container.

3.04 REMOVAL OF CONSTRUCTION WASTE MATERIALS

A. Remove CDL waste materials from project site on a regular basis. Do not allow CDL waste to accumulate on-site.

B. Transport CDL waste materials off Owner's property and legally dispose of them.

C. Burning of CDL waste is not permitted.

3.05 UNIVERSAL WASTE DIVERSION

A. Remove all universal waste from fixtures, panels, and related devices for proper diversion and reclamation.

B. Store all universal waste in containers provided by contact person within facilities operations.

C. Store all universal waste in a secured location and request periodic removal from assigned contact person.

D. Exemption: electric motors, circuit breakers, transformers and lighting contactors are exempt from this provision provided the contractor chooses to salvage or reuse the components.

E. No identified universal waste will be discarded into the waste stream.

END OF SECTION

WASTE MANAGEMENT PROGRESS REPORT				
	DISPOSED IN MUNICIPAL SOLID WASTE LANDFILL	DIVERTED FROM LANDFILL BY RECYCLING, SALVAGE OR REUSE		
MATERIALS CATEGORY		RECYCLED	SALVAGED	REUSED
1. ACOUSTICAL CEILING TILES				
2. ASPHALT				
3. ASPHALT SHINGLES				
4. CARDBOARD PACKAGING				
5. CARPET AND CARPET PAD				
6. CONCRETE				
7. DRYWALL				
8.FLOURESCENT LIGHTS AND BALLASTS				
9. LAND CLEARING DEBRIS (VEGETATION, STUMPAGE, DIRT)				
10. METALS				
11. PAINT (THROUGH HAZARDOUS WASTE OUTLETS)				
12. WOOD				
13. PLASTIC FILM (SHEETING, SHRINK WRAP, PACKAGING)				
14. WINDOW GLASS				
15. FIELD OFFICE WASTE (OFFICE PAPER, ALUMINUM CANS, GLASS, PLASTIC, AND COFFE CARDBOARD)				
16. OTHER (INSERT DESCRIPTION)				
17. OTHER (INSERT DESCRIPTION)				
TOTAL (IN WEIGHT)		(TOTAL OF ALL ABOVE VALUES - IN WEIGHT)		

	PERCENTAGE OF WASTE DIVERTED	(TOTAL WASTE DIVERTED BY TOTAL DIVERTED

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SECTION 01 78 00
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project record documents.

B. Operation and maintenance data.

C. Materials transparency manual.

D. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Section 00 72 00 - General Conditions and 00 73 00 - Supplementary Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.

B. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

C. Section 01 70 00 - Execution and Closeout Requirements: Contract closeout procedures.

D. Individual Product Sections: Specific requirements for operation and maintenance data.

E. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.

B. Operation and Maintenance Data:
   1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
   2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
   3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
   4. Submit two sets of revised final documents in final form within 10 days after final inspection.

C. Materials Transparency Manual:
   1. Compile and submit a digital and a printed version of information disclosing materials content for interior finishes, furnishings (including workstations), built-in furniture. Meet IWBI (BS) requirements for format and content.

D. Warranties and Bonds:
   1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
   2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
   3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.

3. Addenda.
4. Change Orders and other modifications to the Contract.
5. Reviewed shop drawings, product data, and samples.
6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
1. Manufacturer's name and product model and number.
2. Product substitutions or alternates utilized.
3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
1. Field changes of dimension and detail.
2. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:
1. Product data, with catalog number, size, composition, and color and texture designations.
2. Information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

D. Additional information as specified in individual product specification sections.

E. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:
1. Description of unit or system, and component parts.
2. Identify function, normal operating characteristics, and limiting conditions.
3. Include performance curves, with engineering data and tests.
4. Complete nomenclature and model number of replaceable parts.

B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

C. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

D. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
   1. Include HVAC outdoor and exhaust air damper calibration strategy.
      a. Include provisions which ensure that full closure of dampers can be achieved.
   2. Include Carbon Dioxide Monitoring Protocol.
   3. Include Carbon Monoxide Monitoring Protocol.
   4. Include Frost Mitigation Strategy for ventilation heat-recovery system.

E. Provide servicing and lubrication schedule, and list of lubricants required.

F. Include manufacturer's printed operation and maintenance instructions.

G. Include sequence of operation by controls manufacturer.

H. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

I. Provide control diagrams by controls manufacturer as installed.

J. Provide Contractor's coordination drawings, with color coded piping diagrams as installed.

K. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

L. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

M. Include test and balancing reports.

N. Additional Requirements: As specified in individual product specification sections.

3.05 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.

B. Where systems involve more than one specification section, provide separate tabbed divider for each system.

C. Binders: Commercial quality, 8-1/2 by 11 inch (216 by 280 mm) three D side ring binders with durable plastic covers; 2 inch (50 mm) maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants, Contractor and subcontractors, with names of responsible parties.

F. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.

G. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.

H. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.

I. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

J. Arrangement of Contents: Organize each volume in parts as follows:
   1. Project Directory.
   2. Table of Contents, of all volumes, and of this volume.
   3. Operation and Maintenance Data: Arranged by system, then by product category.
      a. Source data.
      b. Product data, shop drawings, and other submittals.
      c. Operation and maintenance data.
      d. Field quality control data.
      e. Photocopies of warranties and bonds.
   4. Design Data: To allow for addition of design data furnished by Architect or others, provide a tab labeled "Design Data" and provide a binder large enough to allow for insertion of at least 20 pages of typed text.

3.06 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

E. Include originals of each in operation and maintenance manuals, indexed separately on Table of Contents.

3.07 OWNER'S CLOSEOUT PROCEDURE CHECKLIST

A. Final Closeout Package to include, but not limited to the following:
   1. Evidence satisfactory to the Owner that all payrolls, material bills, and other indebtedness connected with the work have been paid.
   2. Form G704 Substantial Completion
   3. Form G706 Affidavit of Payment of Debts and Claims
   4. Form 706A Release of Liens Contractor / Subcontractor
   5. Form 707 Consent of Surety Company
   6. Final Payment Application.
   7. Design Review Summary’s (Provided by the Owner)
   8. Construction Meeting Minutes
   9. General Correspondence (Provided by the Owner)
   10. Certificate of Occupancy
   11. Environmental Certificates
   12. Warranties (Letter of Guarantee and Warranty Info), for ALL Subcontractors and General Contractor
   13. Operations and Maintenance Manuals
   14. Instruction Manuals
   15. Hard Copies and PDF Copies of Red-marked As-Built Drawings and Specifications
   16. 2 sets of AutoCAD As-built drawing discs. Updated CAD files (Provided by the Professional)
   17. Test & Balancing Reports
   18. Field Reports/Inspection Reports
   19. Pest Control Final Inspection Report & Warranty (Slabs over 400SF)
   20. Affidavit of Discharge of State Tax Liability
   21. Copy of completed final punch list signed off on by Owner’s Rep

22. Contractor's Punch list Closeout Letter
23. Construction Photographs

B. All Closeout Documents shall be provided with two (2) hard copies and two (2) PDF copies on Archive grade "Gold" CD / DVD's. CD / DVD to be formatted to allow Professional to add files to the CD / DVD, as outlined herein.

C. The Owner reserves the right to retain payments, or parts thereof, for its protection until the foregoing conditions have been complied with, defective work corrected and all unsatisfactory conditions remedied.

END OF SECTION

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SECTION 01 79 00
DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.01 SUMMARY

A. Demonstration of products and systems to be commissioned and where indicated in specific specification sections.

B. Training of Owner personnel in operation and maintenance is required for:
   1. All software-operated systems.
   2. HVAC systems and equipment.
   3. Plumbing equipment.
   4. Electrical systems and equipment.
   5. Conveying systems.
   6. Landscape irrigation.
   7. Items specified in individual product Sections.

C. Training of Owner personnel in care, cleaning, maintenance, and repair is required for:
   1. Roofing, waterproofing, and other weather-exposed or moisture protection products.
   2. Finishes, including flooring, wall finishes, ceiling finishes.
   3. Fixtures and fittings.
   4. Items specified in individual product Sections.

1.02 RELATED REQUIREMENTS

A. Section 01 78 00 - Closeout Submittals: Operation and maintenance manuals.

B. Other Specification Sections: Additional requirements for demonstration and training.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures; except:
   1. Make all submittals specified in this section, and elsewhere where indicated for commissioning purposes, directly to the Commissioning Authority.
   2. Submit one copy to the Commissioning Authority, not to be returned.
   3. Make commissioning submittals on time schedule specified by Commissioning Authority.
   4. Submittals indicated as "Draft" are intended for the use of the Commissioning Authority in preparation of overall Training Plan; submit in editable electronic format, Microsoft Word 2003 preferred.

B. Draft Training Plans: Owner will designate personnel to be trained; tailor training to needs and skill-level of attendees.
   1. Submit to Commissioning Authority for review and inclusion in overall training plan.
   2. Submit not less than four weeks prior to start of training.
   3. Revise and resubmit until acceptable.
   4. Provide an overall schedule showing all training sessions.
   5. Include at least the following for each training session:
      a. Identification, date, time, and duration.
      b. Description of products and/or systems to be covered.
      c. Name of firm and person conducting training; include qualifications.
      d. Intended audience, such as job description.
      e. Objectives of training and suggested methods of ensuring adequate training.
      f. Methods to be used, such as classroom lecture, live demonstrations, hands-on, etc.
      g. Media to be used, such a slides, hand-outs, etc.
      h. Training equipment required, such as projector, projection screen, etc., to be provided by Contractor.

C. Training Manuals: Provide training manual for each attendee; allow for minimum of two attendees per training session.

1. Include applicable portion of O&M manuals.
2. Include copies of all hand-outs, slides, overheads, video presentations, etc., that are not included in O&M manuals.
3. Provide one extra copy of each training manual to be included with operation and maintenance data.

D. Training Reports:
1. Identification of each training session, date, time, and duration.
2. Sign-in sheet showing names and job titles of attendees.
3. List of attendee questions and written answers given, including copies of and references to supporting documentation required for clarification; include answers to questions that could not be answered in original training session.
4. Include Commissioning Authority's formal acceptance of training session.

1.04 QUALITY ASSURANCE

A. Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems.
1. Provide as instructors the most qualified trainer of those contractors and/or installers who actually supplied and installed the systems and equipment.
2. Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 DEMONSTRATION - GENERAL

A. Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Owner.

B. Demonstrations conducted during Functional Testing need not be repeated unless Owner personnel training is specified.

C. Demonstration may be combined with Owner personnel training if applicable.

D. Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.
1. Perform demonstrations not less than two weeks prior to Substantial Completion.
2. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

E. Non-Operating Products: Demonstrate cleaning, scheduled and preventive maintenance, and repair procedures.
1. Perform demonstrations not less than two weeks prior to Substantial Completion.

3.02 TRAINING - GENERAL

A. Commissioning Authority will prepare the Training Plan based on draft plans submitted.

B. Conduct training on-site unless otherwise indicated.

C. Owner will provide classroom and seating at no cost to Contractor.

D. Do not start training until Functional Testing is complete, unless otherwise specified or approved by the Commissioning Authority.

E. Provide training in minimum two hour segments.

F. The Commissioning Authority is responsible for determining that the training was satisfactorily completed and will provide approval forms.

G. Training schedule will be subject to availability of Owner's personnel to be trained; re-schedule training sessions as required by Owner; once schedule has been approved by Owner failure to

conduct sessions according to schedule will be cause for Owner to charge Contractor for personnel "show-up" time.

H. Review of Facility Policy on Operation and Maintenance Data: During training discuss:
   1. The location of the O&M manuals and procedures for use and preservation; backup copies.
   2. Typical contents and organization of all manuals, including explanatory information, system narratives, and product specific information.
   3. Typical uses of the O&M manuals.

I. Product- and System-Specific Training:
   1. Review the applicable O&M manuals.
   2. For systems, provide an overview of system operation, design parameters and constraints, and operational strategies.
   3. Review instructions for proper operation in all modes, including start-up, shut-down, seasonal changeover and emergency procedures, and for maintenance, including preventative maintenance.
   4. Provide hands-on training on all operational modes possible and preventive maintenance.
   5. Emphasize safe and proper operating requirements; discuss relevant health and safety issues and emergency procedures.
   6. Discuss common troubleshooting problems and solutions.
   7. Discuss any peculiarities of equipment installation or operation.
   8. Discuss warranties and guarantees, including procedures necessary to avoid voiding coverage.
   9. Review recommended tools and spare parts inventory suggestions of manufacturers.
   10. Review spare parts and tools required to be furnished by Contractor.
   11. Review spare parts suppliers and sources and procurement procedures.

J. Be prepared to answer questions raised by training attendees; if unable to answer during training session, provide written response within three days.

END OF SECTION

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SECTION 01 91 13
GENERAL COMMISSIONING REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Commissioning is intended to achieve the following specific objectives; this section specifies the Contractor's responsibilities for commissioning:
   1. Verify that the work is installed in accordance with Contract Documents and the manufacturer’s recommendations and instructions, and that it receives adequate operational checkout prior to startup: Startup reports and Prefunctional Checklists executed by Contractor are utilized to achieve this.
   2. Verify and document that functional performance is in accordance with Contract Documents: Functional Tests executed by Contractor and witnessed by the Commissioning Authority are utilized to achieve this.
   3. Verify that operation and maintenance manuals submitted to Owner are complete: Detailed operation and maintenance (O&M) data submittals by Contractor are utilized to achieve this.
   4. Verify that the Owner’s operating personnel are adequately trained: Formal training conducted by Contractor is utilized to achieve this.

B. The Commissioning Authority directs and coordinates all commissioning activities; this section describes some but not all of the Commissioning Authority's responsibilities.

1.02 SCOPE OF COMMISSIONING

A. The following are to be commissioned:
   1. Plumbing Systems:
      a. Water heaters.
   2. HVAC System, including:
      a. Ductwork and accessories.
   3. Electrical Systems:
      a. Lighting controls other than manual switches.

B. Other equipment and systems explicitly identified elsewhere in Contract Documents as requiring commissioning.

C. Sound Transmission Class-rated interior partitions.

D. Indoor Air Quality Procedures: The Commissioning Authority will coordinate; Contractor will execute; see Section 01 57 19 - Temporary Environmental Controls.

1.03 RELATED REQUIREMENTS

A. Section 01 57 19 - Temporary Environmental Controls: Precautions and procedures; smoking room testing; building flush-out.

B. Section 01 78 00 - Closeout Submittals: Scope and procedures for operation and maintenance manuals and project record documents.

C. Section 01 79 00 - Demonstration and Training: Scope and procedures for Owner personnel training.

1.04 REFERENCE STANDARDS

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures; except:
   1. Make all submittals specified in this section, and elsewhere where indicated for commissioning purposes, directly to the Commissioning Authority, unless they require review by Architect; in that case, submit to Architect first.
   2. Submit one copy to the Commissioning Authority, not to be returned.
   3. Make commissioning submittals on time schedule specified by Commissioning Authority.

4. Submittals indicated as "Draft" are intended for the use of the Commissioning Authority in preparation of Prefunctional Checklists or Functional Test requirements; submit in editable electronic format, .docx preferred.
5. As soon as possible after submittals made to Architect are approved, submit copy of approved submittal to the Commissioning Authority.

B. Product Data: If submittals to Architect do not include the following, submit copies as soon as possible:
1. Manufacturer's product data, cut sheets, and shop drawings.
2. Manufacturer's installation instructions.
3. Startup, operating, and troubleshooting procedures.
4. Fan and pump curves.
5. Factory test reports.
6. Warranty information, including details of Owner's responsibilities in regard to keeping warranties in force.

C. Manufacturers' Instructions: Submit copies of all manufacturer-provided instructions that are shipped with the equipment as soon as the equipment is delivered.

D. Startup Plans and Reports.

E. Completed Prefunctional Checklists.

1.06 QUALITY ASSURANCE

A. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 STARTUP PLANS AND REPORTS

A. Startup Plans: For each item of equipment and system for which the manufacturer provides a startup plan, submit the plan not less than 8 weeks prior to startup.

B. Startup Reports: For each item of equipment and system for which the manufacturer provides a startup checklist (or startup plan or field checkout sheet), document compliance by submitting the completed startup checklist prior to startup, signed and dated by responsible entity.

C. Submit directly to the Commissioning Authority.

3.02 PREFUNCTIONAL CHECKLISTS

A. A Prefunctional Checklist is required to be filled out for each item of equipment or other assembly specified to be commissioned.
1. No sampling of identical or near-identical items is allowed.
2. These checklists do not replace manufacturers' recommended startup checklists, regardless of apparent redundancy.
3. Prefunctional Checklist forms will not be complete until after award of the contract; the following types of information will be gathered via the completed Checklist forms:
a. Certification by installing contractor that the unit is properly installed, started up, and operating and ready for Functional Testing.
b. Confirmation of receipt of each shop drawing and commissioning submittal specified, itemized by unit.
c. Manufacturer, model number, and relevant capacity information; list information "as specified," "as submitted," and "as installed."
d. Serial number of installed unit.
e. List of inspections to be conducted to document proper installation prior to startup and Functional Testing; these will be primarily static inspections and procedures; for equipment and systems may include normal manufacturer’s start-up checklist items and minor testing.
f. Sensor and actuator calibration information.

B. Contractor is responsible for filling out Prefunctional Checklists, after completion of installation and before startup; witnessing by the Commissioning Authority is not required unless otherwise specified.
   1. Each line item without deficiency is to be witnessed, initialed, and dated by the actual witness; checklists are not complete until all line items are initialed and dated complete without deficiencies.
   2. Checklists with incomplete items may be submitted for approval provided the Contractor attests that incomplete items do not preclude the performance of safe and reliable Functional Testing; re-submission of the Checklist is required upon completion of remaining items.
   3. Individual Checklists may contain line items that are the responsibility of more than one installer; Contractor shall assign responsibility to appropriate installers or subcontractors, with identification recorded on the form.
   4. If any Checklist line item is not relevant, record reasons on the form.
   5. Contractor may independently perform startup inspections and/or tests, at Contractor's option.
   6. Regardless of these reporting requirements, Contractor is responsible for correct startup and operation.
   7. Submit completed Checklists to Commissioning Authority within two days of completion.

C. Commissioning Authority is responsible for furnishing the Prefunctional Checklists to Contractor.
   1. Initial Drafts: Contractor is responsible for initial draft of Prefunctional Checklist where so indicated in Contract Documents.
   2. Provide all additional information requested by Commissioning Authority to aid in preparation of checklists, such as shop drawing submittals, manufacturers' startup checklists, and O&M data.
   3. Commissioning Authority may add any relevant items deemed necessary regardless of whether they are explicitly mentioned in Contract Documents or not.
   4. When asked to review the proposed Checklists, do so in a timely manner.

D. Commissioning Authority Witnessing: Required for:
   1. Each piece of primary equipment, unless sampling of multiple similar units is allowed by the commissioning plan.
   2. A sampling of non-primary equipment, as allowed by the commissioning plan.

E. Deficiencies: Correct deficiencies and re-inspect or re-test, as applicable, at no extra cost to Owner.
   1. If difficulty in correction would delay progress, report deficiency to the Commissioning Authority immediately.

3.03 FUNCTIONAL TESTS

A. A Functional Test is required for each item of equipment, system, or other assembly specified to be commissioned, unless sampling of multiple identical or near-identical units is allowed by the final test procedures.

B. Contractor is responsible for execution of required Functional Tests, after completion of Prefunctional Checklist and before closeout.

C. Commissioning Authority is responsible for witnessing and reporting results of Functional Tests, including preparation and completion of forms for that purpose.

D. Contractor is responsible for correction of deficiencies and re-testing at no extra cost to Owner; if a deficiency is not corrected and re-tested immediately, the Commissioning Authority will document the deficiency and the Contractor's stated intentions regarding correction.
   1. Deficiencies are any condition in the installation or function of a component, piece of equipment or system that is not in compliance with Contract Documents or does not perform properly.

2. When the deficiency has been corrected, the Contractor completes the form certifying that the item is ready to be re-tested and returns the form to the Commissioning Authority; the Commissioning Authority will reschedule the test and the Contractor shall re-test.
3. Identical or Near-Identical Items: If 10 percent, or three, whichever is greater, of identical or near-identical items fail to perform due to material or manufacturing defect, all items will be considered defective; provide a proposal for correction within 2 weeks after notification of defect, including provision for testing sample installations prior to replacement of all items.
4. Contractor shall bear the cost of Owner and Commissioning Authority personnel time witnessing re-testing.
5. Contractor shall bear the cost of Owner and Commissioning Authority personnel time witnessing re-testing if the test failed due to failure to execute the relevant Prefunctional Checklist correctly; if the test failed for reasons that would not have been identified in the Prefunctional Checklist process, Contractor shall bear the cost of the second and subsequent re-tests.

E. Functional Test Procedures:
1. Some test procedures are included in Contract Documents; where Functional Test procedures are not included in Contract Documents, test procedures will be determined by the Commissioning Authority with input by and coordination with Contractor.
2. Examples of Functional Testing:
a. Test the dynamic function and operation of equipment and systems (rather than just components) using manual (direct observation) or monitoring methods under full operation (e.g., the chiller pump is tested interactively with the chiller functions to see if the pump ramps up and down to maintain the differential pressure setpoint).
b. Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarm, power failure, etc.
c. Systems are run through all the HVAC control system’s sequences of operation and components are verified to be responding as the sequence's state.
d. Traditional air or water test and balancing (TAB) is not Functional Testing; spot checking of TAB by demonstration to the Commissioning Authority is Functional Testing.

F. Deferred Functional Tests: Some tests may need to be performed later, after substantial completion, due to partial occupancy, equipment, seasonal requirements, design or other site conditions; performance of these tests remains the Contractor's responsibility regardless of timing.

3.04 SENSOR AND ACTUATOR CALIBRATION

A. Calibrate all field-installed temperature, relative humidity, carbon monoxide, carbon dioxide, and pressure sensors and gauges, and all actuators (dampers and valves) on this piece of equipment shall be calibrated. Sensors installed in the unit at the factory with calibration certification provided need not be field calibrated.

B. Calibrate using the methods described below; alternate methods may be used, if approved by Commissioning Authority and Owner beforehand. See PART 2 for test instrument requirements. Record methods used on the relevant Prefunctional Checklist or other suitable forms, documenting initial, intermediate and final results.

C. All Sensors:
1. Verify that sensor location is appropriate and away from potential causes of erratic operation.
2. Verify that sensors with shielded cable are grounded only at one end.
3. For sensor pairs that are used to determine a temperature or pressure difference, for temperature make sure they are reading within 0.2 degree F (0.1 degree C) of each other, and for pressure, within tolerance equal to 2 percent of the reading, of each other.
4. Tolerances for critical applications may be tighter.

D. Sensors Without Transmitters - Standard Application:
   1. Make a reading with a calibrated test instrument within 6 inches (150 mm) of the site sensor.
   2. Verify that the sensor reading, via the permanent thermostat, gauge or building automation system, is within the tolerances in the table below of the instrument-measured value.
   3. If not, install offset, calibrate or replace sensor.

E. Sensors With Transmitters - Standard Application.
   1. Disconnect sensor.
   2. Connect a signal generator in place of sensor.
   3. Connect ammeter in series between transmitter and building automation system control panel.
   4. Using manufacturer's resistance-temperature data, simulate minimum desired temperature.
   5. Adjust transmitter potentiometer zero until 4 mA is read by the ammeter.
   6. Repeat for the maximum temperature matching 20 mA to the potentiometer span or maximum and verify at the building automation system.
   7. Record all values and recalibrate controller as necessary to comply with specified control ramps, reset schedules, proportional relationship, reset relationship and P/I reaction.
   8. Reconnect sensor.
   9. Make a reading with a calibrated test instrument within 6 inches (150 mm) of the site sensor.
   10. Verify that the sensor reading, via the permanent thermostat, gauge or building automation system, is within the tolerances in the table below of the instrument-measured value.
   11. If not, replace sensor and repeat.
   12. For pressure sensors, perform a similar process with a suitable signal generator.

F. Sensor Tolerances for Standard Applications: Plus/minus the following maximums:
   1. Watthour, Voltage, Amperage: 1 percent of design.
   2. Pressure, Air, Water, Gas: 3 percent of design.
   3. Air Temperatures (Outside Air, Space Air, Duct Air): 0.4 degrees F (0.2 degree C).
   4. Relative Humidity: 4 percent of design.
   5. Barometric Pressure: 0.1 inch of Hg (340 Pa).
   6. Flow Rate, Air: 10 percent of design.
   7. Flow Rate, Water: 4 percent of design.
   8. AHU Wet Bulb and Dew Point: 2.0 degrees F (1.1 degrees C).

G. Critical Applications: For some applications more rigorous calibration techniques may be required for selected sensors. Describe any such methods used on an attached sheet.

H. Valve/Damper Stroke Setup and Check:
   1. For all valve/damper actuator positions checked, verify the actual position against the control system readout.
   2. Set pump/fan to normal operating mode.
   3. Command valve/damper closed; visually verify that valve/damper is closed and adjust output zero signal as required.
   4. Command valve/damper to open; verify position is full open and adjust output signal as required.
   5. Command valve/damper to a few intermediate positions.
   6. If actual valve/damper position does not reasonably correspond, replace actuator or add pilot positioner (for pneumatics).

I. Isolation Valve or System Valve Leak Check: For valves not associated with coils.
   1. With full pressure in the system, command valve closed.
   2. Use an ultra-sonic flow meter to detect flow or leakage.

3.05 TEST PROCEDURES - GENERAL

A. Provide skilled technicians to execute starting of equipment and to execute the Functional Tests. Ensure that they are available and present during the agreed upon schedules and for sufficient duration to complete the necessary tests, adjustments and problem-solving.

B. Provide all necessary materials and system modifications required to produce the flows, pressures, temperatures, and conditions necessary to execute the test according to the specified conditions. At completion of the test, return all affected equipment and systems to their pre-test condition.

C. Sampling: Where Functional Testing of fewer than the total number of multiple identical or near-identical items is explicitly permitted, perform sampling as follows:
   1. Identical Units: Defined as units with same application and sequence of operation; only minor size or capacity difference.
   2. Sampling is not allowed for:
      a. Major equipment.
      b. Life-safety-critical equipment.
      c. Prefunctional Checklist execution.
   3. XX = the percent of the group of identical equipment to be included in each sample; defined for specific type of equipment.
   4. YY = the percent of the sample that if failed will require another sample to be tested; defined for specific type of equipment.
   5. Randomly test at least XX percent of each group of identical equipment, but not less than three units. This constitutes the "first sample."
   6. If YY percent of the units in the first sample fail, test another XX percent of the remaining identical units.
   7. If YY percent of the units in the second sample fail, test all remaining identical units.
   8. If frequent failures occur, resulting in more troubleshooting than testing, the Commissioning Authority may stop the testing and require Contractor to perform and document a checkout of the remaining units prior to continuing testing.

D. Manual Testing: Use hand-held instruments, immediate control system readouts, or direct observation to verify performance (contrasted to analyzing monitored data taken over time to make the “observation”).

E. Simulating Conditions: Artificially create the necessary condition for the purpose of testing the response of a system; for example apply hot air to a space sensor using a hair dryer to see the response in a VAV box.

F. Simulating Signals: Disconnect the sensor and use a signal generator to send an amperage, resistance or pressure to the transducer and control system to simulate the sensor value.

G. Over-Writing Values: Change the sensor value known to the control system in the control system to see the response of the system; for example, change the outside air temperature value from 50 degrees F to 75 degrees F to verify economizer operation.

H. Indirect Indicators: Remote indicators of a response or condition, such as a reading from a control system screen reporting a damper to be 100 percent closed, are considered indirect indicators.

I. Monitoring: Record parameters (flow, current, status, pressure, etc.) of equipment operation using dataloggers or the trending capabilities of the relevant control systems; where monitoring of specific points is called for in Functional Test Procedures:
   1. All points that are monitored by the relevant control system shall be trended by Contractor; at the Commissioning Authority’s request, Contractor shall trend up to 20 percent more points than specified at no extra charge.
   2. Other points will be monitored by the Commissioning Authority using dataloggers.
   3. At the option of the Commissioning Authority, some control system monitoring may be replaced with datalogger monitoring.

4. Provide hard copies of monitored data in columnar format with time down left column and at least 5 columns of point values on same page.
5. Graphical output is desirable and is required for all output if the system can produce it.
6. Monitoring may be used to augment manual testing.

3.06 OPERATION AND MAINTENANCE MANUALS

A. See Section 01 78 00 - Closeout Submittals for additional requirements.

B. Add design intent documentation furnished by Architect to manuals prior to submission to Owner.

C. Submit manuals related to items that were commissioned to Commissioning Authority for review; make changes recommended by Commissioning Authority.

D. Commissioning Authority will add commissioning records to manuals after submission to Owner.

END OF SECTION

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SECTION 02 41 00
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of building elements for alteration purposes.

1.02 RELATED REQUIREMENTS

A. Section 01 10 00 - Summary: Limitations on Contractor's use of site and premises.

B. Section 01 70 00 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.

C. Section 01 74 19 - Construction Waste Management and Disposal: Limitations on disposal of removed materials; requirements for recycling.

1.03 DEFINITIONS

A. Demolition: Dismantle, raze, destroy or wreck any building or structure or any part thereof.

B. Remove: Detach or dismantle items from existing construction and dispose of them off site, unless items are indicated to be salvaged or reinstalled.

C. Existing to Remain: Designation for existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

1.04 REFERENCE STANDARDS

1.05 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Company specializing in the type of work required.
   1. Minimum of 3 years of documented experience.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 DEMOLITION

A. Refer to demolition drawings for locations and extent of demolition.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Use of explosives is not permitted.
   3. 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.
   4. Provide, erect, and maintain temporary barriers and security devices.
   5. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
   6. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   7. Do not close or obstruct roadways or sidewalks without permits from authority having jurisdiction.
   8. 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.
   9. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon, or limit access to their property.

B. Do not begin removal until receipt of notification to proceed from Owner.

C. Protect existing structures and other elements to remain in place and not 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.

D. Minimize production of dust due to demolition operations. Do not use water.

E. Hazardous Materials:
   1. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCBs, and mercury.

3.03 EXISTING UTILITIES

A. Coordinate work with utility companies. Notify utilities before starting work, comply with their requirements, and obtain required permits.

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.

3.04 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Existing construction and utilities indicated on drawings are based on casual field observation and existing record documents only.
   1. Verify 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. Separate areas in which demolition is being conducted from areas that remain occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 50 00 in locations indicated on drawings.

C. Remove existing work as indicated and required to accomplish new work.
   1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction indicated.
   2. Remove items indicated on drawings.

D. Services including, but not limited to, HVAC, Plumbing, Fire Protection, and Electrical: Remove existing systems and equipment as indicated.
   1. Maintain existing active systems to remain in operation, and 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. Verify that abandoned services serve only abandoned facilities before removal.
   4. 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.

E. Protect existing work to remain.
   1. Prevent movement of structure. Provide shoring and bracing as required.

2. Perform cutting to accomplish removal work neatly and as specified for cutting new work.
3. Repair adjacent construction and finishes damaged during removal work.
4. Patch to match new work.

3.05 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

END OF SECTION

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SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Floors and slabs on grade.

B. Concrete reinforcement.

C. Concrete curing.

1.02 REFERENCE STANDARDS

A. ACI CODE-318 - Building Code Requirements for Structural Concrete and Commentary; 2019 (Reapproved 2022).

B. ACI PRC-211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide; 2022.

C. ACI PRC-302.1 - Guide to Concrete Floor and Slab Construction; 2015.

D. ACI PRC-304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).

E. ACI PRC-308 - Guide to External Curing of Concrete; 2016.

F. ACI SPEC-301 - Specifications for Concrete Construction; 2020.

G. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2024.

H. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2025.

I. ASTM E1155/E1155M - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers; 2023.

J. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2024.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Manufacturer's Installation Instructions: For concrete accessories, indicate installation procedures and interface required with adjacent construction.

C. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

D. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.04 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI SPEC-301 and ACI CODE-318.

1.05 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 REINFORCEMENT MATERIALS

A. Steel Welded Wire Reinforcement (WWR): Galvanized, plain type, ASTM A1064/A1064M.

B. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch (1.29 mm).
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.

B. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Comply with ASTM E1643. Lap joints minimum 6 inches (150 mm). Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. Comply with requirements of ACI SPEC-301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.

C. Verify that seats, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

3.04 PLACING CONCRETE

A. Place concrete in accordance with ACI PRC-304.

B. Place concrete for floor slabs in accordance with ACI PRC-302.1.

C. Ensure reinforcement and embedded parts will not be disturbed during concrete placement.

D. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 SLAB JOINTING

A. Anchor joint fillers and devices to prevent movement during concrete placement.

B. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.

3.06 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. Minimum F(F) Floor Flatness and F(L) Floor Levelness Values:
   1. Exposed to View and Foot Traffic: F(F) of 20; F(L) of 15.
   2. Under Thin Resilient Flooring and Thinset Tile: F(F) of 35; F(L) of 25.

B. Measure F(F) Floor Flatness and F(L) Floor Levelness in accordance with ASTM E1155/E1155M, within 48 hours after slab installation; report both composite overall values and local values for each measured section.

C. Correct the slab surface if composite overall value is less than specified and if local value is less than two-thirds of specified value or less than F(F) 13/F(L) 10.

D. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.07 CONCRETE FINISHING

A. Concrete Slabs: Finish to requirements of ACI PRC-302.1 and as follows:
   1. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI PRC-302.1; thin floor coverings include carpeting, resilient flooring, seamless flooring, resinous matrix terrazzo, thin set quarry tile, and thin set ceramic tile.

3.08 CURING AND PROTECTION

A. Comply with requirements of ACI PRC-308. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Surfaces Not in Contact with Forms:
   1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
   2. Final Curing: Begin after initial curing but before surface is dry.

3.09 DEFECTIVE CONCRETE

A. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.

B. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

3.10 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

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SECTION 05 40 00
COLD-FORMED METAL FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Formed steel stud interior wall framing.

1.02 RELATED REQUIREMENTS

A. Section 06 10 53 - Miscellaneous Rough Carpentry.

B. Section 07 92 00 - Joint Sealants.

C. Section 09 21 16 - Gypsum Board Assemblies: Cold-formed steel nonstructural framing.

D. Section 09 51 00 - Acoustical Ceilings: Ceiling suspension system.

1.03 REFERENCE STANDARDS

A. AISI S100 - North American Specification for the Design of Cold-Formed Steel Structural Members; 2016, with Supplement (2020).

B. AISI S240 - North American Standard for Cold-Formed Steel Structural Framing; 2015, with Errata (2020).

C. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

D. ASTM A780/A780M - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings; 2020.

E. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members; 2025.

F. ASTM C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories; 2020 (Reapproved 2024).

G. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate with work of other sections that is to be installed in or adjacent to metal framing systems, including but not limited to structural anchors, cladding anchors, utilities, insulation, and firestopping.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on cold-formed steel structural members; include material descriptions and base steel thickness.

C. Product Data: Provide manufacturer's data on factory-made connectors and mechanical fasteners, showing compliance with requirements.

D. Manufacturer Reports: Include research reports indicating compliance with applicable building codes.

E. Manufacturer's Installation Instructions: Provide installation instructions for connectors.

F. Designer's Qualification Statement.

G. Manufacturer's Qualification statement.

1.06 QUALITY ASSURANCE

A. See Section 01 40 00 - Quality Requirements for additional requirements.

B. Designer Qualifications: Design framing system under direct supervision of a professional structural engineer experienced in designing this work and licensed in the State in which the Project is located.

C. Manufacturer Qualifications:

D. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience and approved by manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Structural Framing:
1. Basis of Design; ClarkDietrich: www.clarkdietrich.com.
2. Jaimes Industries: www.jaimesind.com.
3. SCAFCO Corporation: www.scafco.com.
4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Connectors:
1. Basis of Design; ClarkDietrich: www.clarkdietrich.com.
2. MarinoWARE: www.marinoware.com.
3. Simpson Strong-Tie: www.strongtie.com.
4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

A. Design Requirements: Design cold-formed framing systems, components and connectors to withstand specified design loads in compliance with ICC (IBC), ASCE 7, AISI S100, and AISI S240.

B. Design Criteria: In accordance with applicable codes.
1. Able to tolerate movement of components without damage, failure of joint seals, undue stress on fasteners, or other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.
2. Able to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.

2.03 MATERIALS

A. Steel Sheet: ASTM A1003/A1003M, subject to the ductility limitations indicated in AISI S240.

2.04 STRUCTURAL FRAMING COMPONENTS

A. Wall Studs and Track Sections: AISI S240; c-shaped studs and u-shaped track sections in stud-matching nominal width and compatible height.
1. Corrosion Protection Coating Designation: CP 60 in accordance with AISI S240.
2. Thickness and Depth: Depth as indicated on the drawings; thickness and structural grade as required to meet design criteria.

B. Jamb Studs: AISI S240; manufactured, engineered, c-shaped with wide flanges, designed to replace conventional double-stud framing at openings.
1. Corrosion Protection Coating Designation: CP 60 in accordance with AISI S240.
2. Thickness and Depth: Depth as indicated on drawings; thickness and structural grade as required to meet specified design criteria.
3. Thickness and Depth: As indicated on drawings.

C. Headers: AISI S240; manufactured, engineered one-member or two-member assemblies, with wide flanges, designed to replace conventional box or nested header framing at openings.
1. Corrosion Protection Coating Designation: CP 60 in accordance with AISI S240.
2. Thickness and Depth: Depth as indicated on drawings; thickness and structural grade as required to meet specified design criteria.
3. Thickness and Depth: As indicated on drawings.
4. Jamb Mounting Clips: Manufacturer's standard.

2.05 CONNECTIONS

A. Performance Requirements: Provide connections in compliance with requirements of AISI S240.

B. Movement Connections: Provide mechanical anchorage devices that accommodate movement using slotted holes, shouldered screws or screws and anti-friction or stepped bushings, while maintaining structural performance of framing.
   1. Products:
      a. Basis of Design; ClarkDietrich; Drift Rail and Clip (DRC): www.clarkdietrich.com: See drawing schedule.
      b. MarinoWARE; Slotted Track: www.marinoware.com.
      c. Simpson Strong-Tie; SCB Side-Clip Connector: www.strongtie.com.

2.06 ACCESSORIES

A. Bracing, Furring, Bridging: Formed sheet steel, thickness determined for conditions encountered; finish to match framing components.

B. Galvanizing Repair: Touch up bare steel with zinc-rich paint in compliance with ASTM A780/A780M.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

3.02 INSTALLATION - GENERAL

A. Install structural members and connections in compliance with ASTM C1007.

3.03 INSTALLATION OF STUDS

A. Install wall studs plumb and level.

B. Construct corners using minimum of three studs. Install double studs at wall openings, door and window jambs.

C. Coordinate placement of insulation in multiple stud spaces made inaccessible after erection.

D. Install intermediate studs above and below openings to align with wall stud spacing.

E. Provide deflection allowance in stud track, directly below horizontal building framing at non-loadbearing framing.

F. Install framing between studs for attachment of mechanical and electrical items, and to prevent stud rotation.

G. Touch-up field welds and damaged corrosion protected surfaces with primer.

END OF SECTION

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SECTION 06 10 53
MISCELLANEOUS ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTIONS INCLUDES

A. Concealed wood blocking, nailers, and supports.

1.02 REFERENCE STANDARDS

A. PS 20 - American Softwood Lumber Standard; 2025.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org), and that provides grading service for species and grade specified. Provide lumber stamped with grade mark unless otherwise indicated.

2.02 DIMENSION LUMBER

A. Sizes: Nominal sizes as indicated on drawings, S4S.

B. Moisture Content: S-dry or MC19.

C. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No.2 or Standard Grade.
   2. Boards: Standard or No.3.

2.03 ACCESSORIES

A. Metal and Finish of Fasteners:
   1. Untreated Wood: Unfinished steel.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to greatest extent possible; clearly separate scrap for use on-site as accessory components, including shims, bracing, and blocking.

3.02 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

3.03 CLEANING

A. Waste Disposal: See Section 01 74 19 - Construction Waste Management and Disposal.
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.
   4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

B. Do not leave wood, shavings, sawdust, etc. on ground or buried in fill.

C. Prevent sawdust and wood shavings from entering storm drainage system.

END OF SECTION

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SECTION 07 92 00
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nonsag gunnable joint sealants.

B. Joint backings and accessories.

1.02 RELATED REQUIREMENTS

A. Section 09 21 16 - Gypsum Board Assemblies: Sealing acoustical and sound-rated walls and ceilings.

B. Section 09 30 00 - Tiling: Sealant between tile and plumbing fixtures and at junctions with other materials and changes in plane.

1.03 REFERENCE STANDARDS

A. ASTM C834 - Standard Specification for Latex Sealants; 2017 (Reapproved 2023).

B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018 (Reapproved 2024).

C. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2025.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Submit manufacturer's technical datasheets for each product to be used; include the following:
   1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
   2. List of backing materials approved for use with the specific product.
   3. Backing material recommended by sealant manufacturer.
   4. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
   5. Substrates the product should not be used on.
   6. Sample product warranty.

C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.

D. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

E. Manufacturer's qualification statement.

F. Installer's qualification statement.

G. Executed warranty.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.

1.06 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Nonsag Sealants:
   1. Basis of Design; Dow; www.dow.com.

2. Sika Corporation: usa.sika.com.
3. Tremco Commercial Sealants & Waterproofing: www.tremcosealants.com.
4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 JOINT SEALANT APPLICATIONS

A. Scope:
   1. Interior Joints:
      a. Seal the following joints:
         1) Joints between door frames and window frames and adjacent construction.
         2) At countertops and around plumbing fixtures.

2.03 NONSAG JOINT SEALANTS

A. Nonstaining Silicone Sealant: ASTM C920, Grade NS, Uses M, A, G, and O; not expected to withstand continuous water immersion or traffic.
   1. Products:
      a. Basis of Design; Dow; DOWSIL 756 SMS Building Sealant: www.dow.com.
      b. Sika Corporation; Sikasil WS-290: usa.sika.com.
      c. Tremco Commercial Sealants & Waterproofing; Spectrem 1: www.tremcosealants.com.
      d. Substitutions: See Section 01 60 00 - Product Requirements.

B. Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
   1. Color: White.
   2. Products:
      a. Basis of Design; Sika Corporation; Sikasil N Plus US: usa.sika.com.
      b. Adfast USA Inc; ADSEAL KB 4800 Series : www.adfastcorp.com.
      c. Everkem Diversified Products, Inc; TruSil 100: www.everkemproducts.com.
      d. Substitutions: See Section 01 60 00 - Product Requirements.

2.04 ACCESSORIES

A. Sealant Backing Materials, General: Materials placed in joint before applying sealants; assists sealant performance and service life by developing optimum sealant profile and preventing three-sided adhesion; type and size recommended by sealant manufacturer for compatibility with sealant, substrate, and application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION

A. Install this work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Provide joint sealant installations complying with ASTM C1193.

C. Install bond breaker backing tape where backer rod cannot be used.

D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

E. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

F. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

3.04 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements for additional requirements.

B. Perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.

C. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

3.05 POST-OCCUPANCY

A. Post-Occupancy Inspection: Perform visual inspection of entire length of project sealant joints at a time that joints have opened to their greatest width, i.e., at low temperature in thermal cycle. Report failures immediately and repair them.

END OF SECTION

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SECTION 08 11 13
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Hollow metal frames for wood doors.

1.02 RELATED REQUIREMENTS

A. Section 08 71 00 - Door Hardware.

B. Section 09 90 00 – Painting and Coating.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2023.

C. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2025.

D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025a.

E. 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; 2026.

F. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2025.

G. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

H. NAAMM HMMA 840 - Guide Specifications for Receipt, Storage and Installation of Hollow Metal Doors and Frames; 2024.

I. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames; 2014.

J. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames; 2023.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

D. Samples: Submit two samples of metal, 2 by 2 inches (51 by 51 mm) in size, showing factory finishes, colors, and surface texture.

E. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.

F. Manufacturer's Certificate: Certification that products meet or exceed specified requirements.

G. Manufacturer's Qualification Statement.

H. Installer's Qualification Statement.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

C. Maintain at project site copies of reference standards relating to installation of products specified.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hollow Metal Doors and Frames:
1. Basis of Design; Ceco Door, an Assa Abloy Group company; www.assaabloydss.com: See drawign schedule.
2. Dunbarton Corporation; Hollow Metal: www.dunbarton.com.
3. Steelcraft, an Allegion brand: www.allegion.com.
4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

A. Requirements for Hollow Metal Doors and Frames:
1. Steel Sheet: Comply with one or more of the following requirements; galvannealed steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
2. Accessibility: Comply with ICC A117.1 and ADA Standards.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. Frame Finish: Factory primed and field finished.

C. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
1. Frame Metal Thickness: 18 gauge, 0.042 inch (1.0 mm), minimum.

2.04 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

2.05 ACCESSORIES

A. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.

B. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

B. Coordinate frame anchor placement with wall construction.

C. Install door hardware as specified in Section 08 71 00.

3.03 TOLERANCES

A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.

B. Maximum Diagonal Distortion: 1/16 inch (1.6 mm) measured with straight edge, corner to corner.

3.04 ADJUSTING

A. Adjust for smooth and balanced door movement.

END OF SECTION

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SECTION 08 14 16
FLUSH WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flush wood doors; flush configuration; non-rated.

1.02 RELATED REQUIREMENTS

A. Section 08 12 13 - Hollow Metal Frames.

B. Section 08 71 00 - Door Hardware.

C. Section 09 90 00 - Painting and Coating

1.03 REFERENCE STANDARDS

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition; 2014, with Errata (2016).

B. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards; 2021, with Errata.

C. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.

C. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.

D. Samples: Submit two samples of door construction, 6 by 6 inches (152 by 152 mm) in size cut from top corner of door.

E. Samples: Submit two samples of door veneer, 6 by 6 inches (152 by 152 mm) in size illustrating wood grain, stain color, and sheen.

F. Certificate: Submit labels and certificates required by quality assurance and quality control programs.

G. Manufacturer's Installation Instructions: Indicate special installation instructions.

H. Manufacturer's qualification statement.

I. Installer's qualification statement.

J. Specimen warranty.

K. Warranty, executed in Owner's name.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section, with not less than three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Package, deliver and store doors in accordance with specified quality standard.

B. Accept doors on site in manufacturer's packaging, and inspect for damage.

C. Protect doors with resilient packaging sealed with heat shrunk plastic; do not store in damp or wet areas or areas where sunlight might bleach veneer; seal top and bottom edges with tinted sealer if stored more than one week, and break seal on site to permit ventilation.

1.07 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Wood Veneer Faced Doors:
   1. Basis of Design; VT Industries, Inc.; www.vtindustries.com: See drawing schedule.
   2. Haley Brothers: www.haleybros.com.
   3. Oregon Door: www.oregondoor.com.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 DOORS

A. Doors: See drawings for locations and additional requirements.
   1. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.

B. Interior Doors: 1-3/4 inches (44 mm) thick unless otherwise indicated; flush construction.
   1. Provide solid core doors at each location.
   2. Wood veneer facing for field transparent finish.

2.03 DOOR AND PANEL CORES

A. Non-Rated Solid Core and 20 Minute Rated Doors: Type particleboard core (PC), plies and faces as indicated.

2.04 DOOR FACINGS

A. Veneer Facing for Transparent Finish: Red oak, veneer grade in accordance with quality standard indicated, plain sliced (flat cut), with book match between leaves of veneer, running match of spliced veneer leaves assembled on door or panel face.

2.05 DOOR CONSTRUCTION

A. Fabricate doors in accordance with door quality standard specified.

B. Cores Constructed with stiles and rails:

C. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.

D. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.

E. Provide edge clearances in accordance with the quality standard specified.

2.06 FINISHES - WOOD VENEER DOORS

A. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:
   1. Transparent:
      a. System - 1, Lacquer, Nitrocellulose.
      b. Stain: As selected by Architect.
      c. Sheen: Flat.

2.07 ACCESSORIES

A. Hollow Metal Door Frames: See Section 08 11 13.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION

A. Install doors in accordance with manufacturer's instructions and specified quality standard.

B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.

C. Use machine tools to cut or drill for hardware.

D. Coordinate installation of doors with installation of frames and hardware.

3.03 TOLERANCES

A. Comply with specified quality standard for fit and clearance tolerances.

B. Comply with specified quality standard for telegraphing, warp, and squareness.

3.04 ADJUSTING

A. Adjust doors for smooth and balanced door movement.

B. Adjust closers for full closure.

END OF SECTION

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SECTION 08 71 00
DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Hardware for wood doors.

1.02 RELATED REQUIREMENTS

A. Section 07 92 00 - Joint Sealants

B. Section 08 12 13 - Hollow Metal Frames.

C. Section 08 14 16 - Flush Wood Doors.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. BHMA A156.1 - Standard for Butts and Hinges; 2025.

C. BHMA A156.3 - Exit Devices; 2025.

D. BHMA A156.4 - Door Closers and Pivots; 2024.

E. BHMA A156.5 - Cylinders and Input Devices for Locks; 2020.

F. BHMA A156.6 - Standard for Architectural Door Trim; 2021.

G. BHMA A156.16 - Standard for Auxiliary Hardware; 2023.

H. BHMA A156.18 - Standard for Materials and Finishes; 2020.

I. BHMA A156.36 - Auxiliary Locks; 2020.

J. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

K. UL (DIR) - Online Certifications Directory; Current Edition.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.

B. Keying Requirements Meeting:
   1. Attendance Required:
      a. Contractor.
      b. Owner.
      c. Architect.
   2. Agenda:
      a. Establish keying requirements.
      b. Verify locksets and locking hardware are functionally correct for project requirements.
      c. Verify that keying and programming complies with project requirements.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.

C. Shop Drawings - Door Hardware Schedule: Submit detailed listing that includes each item of hardware to be installed on each door. Use door numbering scheme as included in Contract Documents.
   1. Prepared by or under supervision of Architectural Hardware Consultant (AHC).
   2. Provide complete description for each door listed.
   3. Provide manufacturer name, product names, and catalog numbers; include functions, types, styles, sizes and finishes of each item.

D. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

E. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

F. Manufacturer's qualification statement.

G. Installer's qualification statement.

H. Supplier's qualification statement.

I. Specimen warranty.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified for commercial door hardware with at least three years of documented experience.

C. Supplier Qualifications: Company with certified Architectural Hardware Consultant (AHC) to assist in work of this section.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Package hardware items individually; label and identify each package with door opening code to match door hardware schedule.

1.08 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Manufacturer's Warranty: Provide warranty against defects in material and workmanship for period indicated. Complete forms in Owner's name and register with manufacturer.
   1. Locksets and Cylinders: Three years, minimum.
   2. Other Hardware: Two years, minimum.

PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.

B. Provide individual items of single type, of same model, and by same manufacturer.

C. Provide door hardware products that comply with the following requirements:
   1. Applicable provisions of federal, state, and local codes.
   2. Accessibility: ADA Standards and ICC A117.1.

2.02 HINGES

A. Manufacturers:
   1. Basis of Design; McKinney; an Assa Abloy Group company; www.assaabloydss.com: See drawing schedule.
   2. Hager Companies: www.hagerco.com.
   3. BEST, dormakaba Group: www.bestaccess.com.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Hinges: Comply with BHMA A156.1, Grade 1.
   1. Provide hinges on every swinging door.
   2. Provide ball-bearing hinges at each door with closer.
   3. Provide following quantity of butt hinges for each door:
      a. Doors From 60 inches (1.5 m) High up to 90 inches (2.3 m) High: Three hinges.

2.03 AUXILIARY LOCKS (DEADLOCKS)

A. Manufacturers:

1. Basis of Design; Yale; an Assa Abloy Group company; www.assaabloydss.com: See drawing schedule.
2. BEST, dormakaba Group: www.bestaccess.com.
3. Hager Companies: www.hagerco.com.
4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Auxiliary Locks (Deadlocks): Comply with BHMA A156.36, Grade 1.
1. Type: Bored (cylindrical).
2. Application: Bored.
3. Backset: 2-3/4 inch (70 mm), unless otherwise indicated.
4. Bolt Throw: 1/2 inch (12.7 mm), with latch made of hardened steel.
5. Provide strike that matches frame.

2.04 DOOR PULLS AND PUSH PLATES

A. Manufacturers:
1. Basis of Design; Rockwood; an Assa Abloy Group company; www.assaabloydss.com: See drawing schedule.
2. Hager Companies: www.hagerco.com.
3. Pamex, Inc; Door Pulls and Push Plates: www.pamexinc.com.
4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Door Pulls and Push Plates: Comply with BHMA A156.6.
1. Pull Type: Straight, unless otherwise indicated.
2. Push Plate Type: Flat, with square corners, unless otherwise indicated.
a. Edges: Beveled, unless otherwise indicated.
3. Material: Aluminum, unless otherwise indicated.

2.05 CLOSERS

A. Manufacturers; Surface Mounted:
1. Basis of Design; BEST, dormakaba Group; EHD9000; www.bestaccess.com; See drawing schedule.
2. Corbin Russwin; an Assa Abloy Group company: www.assaabloydss.com.
3. Hager Companies: www.hagerco.com.
4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Closers: Comply with BHMA A156.4, Grade 1.
1. Type: Surface mounted to door.
2. Provide door closer on each exterior door.

2.06 KICK PLATES

A. Manufacturers:
1. Basis of Design; Hiawatha, Inc, an Activar Construction Products Group company; www.activarcpg.com/hiawatha: See drawing schedule.
2. Inpro Corporation: www.inprocorp.com.
3. Ives, an Allegion brand: www.allegion.com/us.
4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Kick Plates: Provide along bottom edge of push side of every door with closer, except aluminum storefront and glass entry doors, unless otherwise indicated.
1. Size: 8 inch (203 mm) high by 2 inch (51 mm) less door width (LDW) on push side of door.

2.07 WALL STOPS

A. Manufacturers:
1. Basis of Design; Rockwood; an Assa Abloy Group company; www.assaabloydss.com: See drawing schedule.
2. Hager Companies: www.hagerco.com.

3. Hiawatha, Inc, division of Activar Construction Products Group, Inc: www.activarcpg.com/hiawatha.
4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Wall Stops: Comply with BHMA A156.16, Grade 1 and Resilient Material Retention Test as described in this standard.
1. Type: Bumper, concave, wall stop.
2. Material: Aluminum housing with rubber insert.

2.08 SILENCERS

A. Manufacturers:
1. Basis of Design; Ives, an Allegion brand; www.allegion.com: See drawing schedule.
2. Rockwood; an Assa Abloy Group company: www.assaabloydss.com.
3. National Guard Products, Inc: www.ngpinc.com/#sle.
4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Silencers: Provide at equal locations on door frame to mute sound of door's impact upon closing.
1. Single Door: Provide three on strike jamb of frame.
2. Pair of Doors: Provide two on head of frame, one for each door at latch side.
3. Material: Rubber, gray color.

2.09 FINISHES

A. Finishes: Identified in Section 08 0671 - Door Hardware Schedule.

B. Finishes: Provide door hardware of same finish, unless otherwise indicated.
1. Primary Finish: 625; bright chromium plated over nickel, with brass or bronze base material (former US equivalent US26); BHMA A156.18.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that doors and frames are ready to receive this work; labeled, fire-rated doors and frames are properly installed, and dimensions are as indicated on shop drawings.

3.02 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.

B. Use templates provided by hardware item manufacturer.

C. Door Hardware Mounting Heights: Distance from finished floor to center line of hardware item. As indicated in following list; unless noted otherwise in Door Hardware Schedule or on drawings.

D. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.

3.03 FIELD QUALITY CONTROL

A. Perform field inspection and testing under provisions of Section 01 40 00 - Quality Requirements.

3.04 ADJUSTING

A. Adjust work under provisions of Section 01 70 00 - Execution and Closeout Requirements.

B. Adjust hardware for smooth operation.

C. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.05 CLEANING

A. Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.

B. Clean adjacent surfaces soiled by hardware installation.

C. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

D. See Section 01 74 19 - Construction Waste Management and Disposal for additional requirements.

3.06 PROTECTION

A. Protect finished Work under provisions of Section 01 70 00 - Execution and Closeout Requirements.

B. Do not permit adjacent work to damage hardware or finish.

END OF SECTION

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SECTION 08 87 23
SAFETY AND SECURITY FILMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Glazing film applied to existing glazing assemblies.

B. Glazing assemblies to receive film are indicated on drawings.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Record of product certification for safety requirements.
   2. Preparation instructions and recommendations.
   3. Storage and handling requirements and recommendations.
   4. Installation methods.

C. Samples: For each film product to be used, minimum size 4 inches (102 mm) by 6 inches (152 mm), representing actual product, color, and patterns.

D. Test Reports: Detailed reports of full-scale chamber tests to specified criteria, using assemblies identical to those required for this project.

E. Specimen Warranty.

1.03 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 authorities having jurisdiction.

1.04 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.

1.05 WARRANTY

A. Provide 10 year manufacturer's replacement warranty to cover film against peeling, cracking, discoloration, and deterioration.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design; LLumar - Matte Frost Series - Fross NRM PS2: www.averydennison.com: See Drawing Schedule.

B. 3M Window Film: www.solutions.3m.com.

C. Flexvue Films: www.flexvuefilms.com.

D. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 MATERIALS

A. Glazing Film: Transparent polyester film for permanent bonding to glass.
   1. Thickness: 0.008 inch (0.2 mm), minimum.
   2. Color: Frosted.
   3. Adhesive Type: Pressure sensitive acrylic.

B. Accessory Materials: As recommended or required by film manufacturer.

C. Glass Cleaner: As recommended by glazing film manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine glass and frames. Verify that existing conditions are adequate for proper application and performance of film.

B. Verify glass is not cracked, chipped, broken, or damaged.

C. Verify that frames are securely anchored and free of defects.

D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean glass of dust, dirt, paint, oil, grease, mildew, mold, and other contaminants that would inhibit adhesion.

B. Immediately prior to applying film, thoroughly wash glass with neutral cleaning solution.

C. Protect adjacent surfaces.

D. Do not begin installation until substrates have been properly prepared.

3.03 INSTALLATION

A. Do not apply glazing film when surface temperature is less that 40 degrees F (4 degrees C) or if precipitation is imminent.

B. Install in accordance with manufacturer's instructions, without air bubbles, wrinkles, streaks, bands, thin spots, pinholes, or gaps, as required to achieve specified performance.

C. Accurately cut film with straight edges to required sizes allowing 1/16 inch (2 mm) to 1/8 inch (3 mm) gap at perimeter of glazed panel unless otherwise required by anchorage method.

D. Seams: Seam film only as required to accommodate material sizes; form seams vertically without overlaps and gaps; do not install with horizontal seams.

E. Clean glass and anchoring accessories following installation. Remove excess sealants and other glazing materials from adjacent finished surfaces.

F. Remove labels and protective covers.

3.04 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

SECTION 09 05 61
COMMON WORK RESULTS FOR FLOORING PREPARATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section applies to floors identified in Contract Documents that are receiving the following types of floor coverings:
   1. Thin-set ceramic tile and stone tile.

B. Removal of existing floor coverings.

C. Preparation of existing concrete floor slabs for installation of floor coverings.

D. Testing of concrete floor slabs for moisture and alkalinity (pH).

E. Remediation of concrete floor slabs due to unsatisfactory moisture or alkalinity (pH) conditions.
   1. 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.

F. Patching compound.

G. Remedial floor coatings.

H. Remedial floor treatment.

1.02 RELATED REQUIREMENTS

A. Section 01 40 00 - Quality Requirements: Additional requirements relating to testing agencies and testing.

B. Section 01 74 19 - Construction Waste Management and Disposal: Handling of existing floor coverings removed.

1.03 REFERENCE STANDARDS

A. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 50 mm [2 in.] Cube Specimens); 2024.

B. ASTM C472 - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters, and Gypsum Concrete; 2020.

C. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2023.

D. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; 2018.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate scheduling of cleaning and testing, so that preliminary cleaning has been completed for at least 24 hours prior to testing.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Visual Observation Report: For existing floor coverings to be removed.

C. 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.

D. Testing Agency's Report:
   1. Description of areas tested; include floor plans and photographs if helpful.
   2. Summary of conditions encountered.
   3. Moisture and alkalinity (pH) test reports.

4. Copies of specified test methods.
5. Recommendations for remediation of unsatisfactory surfaces.
6. Submit report to Architect.
7. Submit report not more than two business days after conclusion of testing.

E. Adhesive Bond and Compatibility Test Report.

F. Copy of RFCI (RWP).

1.06 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.

D. Contractor's Responsibility Relating to Independent Agency Testing:
1. Provide access for and cooperate with testing agency.
2. Confirm date of start of testing at least 10 days prior to actual start.
3. Allow at least 4 business days on site for testing agency activities.
4. Achieve and maintain specified ambient conditions.
5. Notify Architect when specified ambient conditions have been achieved and when testing will start.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, handle, and protect products in accordance with manufacturer’s instructions and recommendations.

B. Deliver materials in manufacturer’s packaging; include installation instructions.

C. Keep materials from freezing.

1.08 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.

PART 2 PRODUCTS

2.01 MATERIALS

A. Patching Compound: Floor covering manufacturer's recommended product, suitable for conditions, and compatible with adhesive and floor covering. In the absence of any recommendation from flooring manufacturer, provide a product with the following characteristics:
1. Cementitious moisture-, mildew-, and alkali-resistant compound, compatible with floor, floor covering, and floor covering adhesive, and capable of being feathered to nothing at edges.
2. Compressive Strength: 3000 psi, minimum, after 28 days, when tested in accordance with ASTM C109/C109M or ASTM C472, whichever is appropriate.
3. Products:
   a. Basis of Design; USG Corporation; Durock Brand Advanced Skim Coat Floor Patch: www.usg.com.
   b. TEC Specialty Products LLC; TEC Feather Edge Skim Coat: www.tecspecialty.com.

c. LATICRETE International, Inc; SKIM LITE: www.laticrete.com/.
d. Substitutions: See Section 01 60 00 - Product Requirements.

B. Remedial Floor Coating, Two-Component: Single-layer coating resistant to water vapor transmission meeting flooring manufacturer's emission limits, resistant to alkalinity (pH) level found, and suitable for flooring adhesion without further treatment.
1. Products:
a. USG Corporation; Durock CoverPrep: www.usg.com.
b. TEC Specialty Products LLC: www.tecspecialty.com.
c. LATICRETE International, Inc: www.laticrete.com.
d. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 CONCRETE SLAB PREPARATION

A. Perform following operations in the order indicated:
1. Preliminary cleaning.
2. Moisture vapor emission tests; 3 tests in the first 1000 square feet (100 square meters) and one test in each additional 1000 square feet (100 square meters), unless otherwise indicated or required by flooring manufacturer.
3. Internal relative humidity tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
4. Alkalinity (pH) tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
5. Specified remediation, if required.
6. Patching, smoothing, and leveling, as required.
7. Other preparation specified.
8. Adhesive bond and compatibility test.
9. Protection.

3.02 REMOVAL OF EXISTING FLOOR COVERINGS

A. Comply with local, State, and federal regulations and recommendations of RFCI (RWP), as applicable to floor covering being removed.

B. Dispose of removed materials in accordance with local, State, and federal regulations and as specified.

3.03 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.

3.04 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. 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.

3.05 ADHESIVE BOND AND COMPATIBILITY TESTING

A. Comply with requirements and recommendations of floor covering manufacturer.

3.06 APPLICATION OF REMEDIAL FLOOR COATING

A. Comply with requirements and recommendations of coating manufacturer.

END OF SECTION

SECTION 09 21 16
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Performance criteria for gypsum board assemblies.

B. Gypsum wallboard.

C. Cementitious backing board.

D. Joint treatment and accessories.

E. Insulation.

1.02 RELATED REQUIREMENTS

A. Section 05 40 00 - Cold-Formed Metal Framing: Structural steel stud framing.

B. Section 06 10 00 - Rough Carpentry: Wood blocking product and execution requirements.

C. Section 07 92 00 - Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.

D. Section 09 30 00 - Tiling: Tile backing board.

1.03 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 C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2024.

D. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2020.

E. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2025.

F. ASTM C1325 - Standard Specification for Fiber-Mat Reinforced Cementitious Backer Units; 2025.

G. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2024.

H. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2021.

I. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

J. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.

K. ASTM E136 - Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 Degrees C; 2026.

L. ASTM E413 - Classification for Rating Sound Insulation; 2022.

M. GA-216 - Application and Finishing of Gypsum Panel Products; 2024.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Include data on gypsum board, accessories, and joint finishing system.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing gypsum board installation and finishing, with minimum 3 years of experience.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.

B. Interior Partitions: Provide completed assemblies.

2.02 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:
   1. Basis of Design; USG Corporation - Sheet Rock Brand; www.usg.com.
   2. National Gypsum Company: www.nationalgypsum.com.
   3. American Gypsum: www.americangypsum.com.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Gypsum Board: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
   2. Thickness:
      a. Vertical Surfaces: 5/8 inch (16 mm).
      b. Ceilings: 5/8 inch (16 mm).

C. Backing Board For Wet Areas: One of the following products:
   1. Application: Surfaces behind tile in wet areas including tub and shower surrounds and shower ceilings.
   2. Application: Horizontal surfaces behind tile in wet areas including countertops and restroom walls.
   3. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
   4. ANSI Cement-Based Board: Non-gypsum-based; aggregated Portland cement panels with glass fiber mesh embedded in front and back surfaces complying with or , suitable for decoration using natural stone or tile on walls, floors, or decks in wet and dry areas.
      a. Unfaced Products:
         1) Basis of Design; USG Corporation; USG Durock Brand Cement Board with EdgeGuard 1/2 inch; www.usg.com.
         2) National Gypsum Company: www.nationalgypsum.com.
         3) American Gypsum: www.americangypsum.com.
         4) Substitutions: See Section 01 60 00 - Product Requirements.

D. Backing Board For Non-Wet Areas: Water-resistant gypsum backing board as defined in ASTM C1396/C1396M; sizes to minimum joints in place; ends square cut.
   1. Application: Vertical surfaces behind thinset tile, except in wet areas.
   2. Regular Board Thickness: 1/2 inch (13 mm).
   3. Edges: Tapered.
   4. Products:
      a. Basis of Design; USG Corporation; USG Durock Brand Cement Board with EdgeGuard 1/2 inch: www.usg.com.
      b. National Gypsum Company: www.nationalgypsum.com.
      c. American Gypsum: www.americangypsum.com.
      d. Substitutions: See Section 01 60 00 - Product Requirements.

E. Ceiling Board: Special sag resistant gypsum ceiling board as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Ceilings, unless otherwise indicated.
   2. Thickness: 1/2 inch (13 mm).
   3. Edges: Tapered.
   4. Products:
      a. Basis of Design; USG Corporation - Sheet Rock Brand; www.usg.com.
      b. National Gypsum Company: www.nationalgypsum.com.

c. American Gypsum: www.americangypsum.com.
d. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 GYPSUM WALLBOARD ACCESSORIES

A. Glass Fiber Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
1. Type 1, Class A, unfaced.
2. Flame Spread Index: 25 or less, when tested in accordance with ASTM E84.
3. Smoke Developed Index: 50 or less, when tested in accordance with ASTM E84.
4. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
5. Sustainability Certifications: Greenguard Gold Certified; Declare Red List Free.
6. Products:
a. Basis of Design; Owens Corning, Pink Next GEN Fiberglas Insulation; www.owenscorning.com.
b. Knauf Insulation Inc; Knauf EcoBatt Insulation: www.knaufnorthamerica.com
c. Johns Manville; Cavity-SHEILD; www.jm.com
d. Substitutions: See Section 01 60 00 - Product Requirements.

B. Drywall Ceiling Installation Accessories: Products recommended by gypsum board manufacturer.

C. Fasteners and Adhesives: Products recommended by gypsum board manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.

B. Studs: Space studs at 16 inches on center (at 406 mm on center).
1. Extend partition framing to structure where indicated and to ceiling in other locations.
2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.

C. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.

D. Blocking: Install wood blocking for support of:

3.03 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install in accordance with manufacturer's instructions.

3.04 BOARD INSTALLATION

A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Cementitious Backing Board: Install over steel framing members and plywood substrate where indicated, in accordance with and manufacturer's instructions.

3.05 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.

B. Corner Beads: Install at external corners, using longest practical lengths.

C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.

3.06 JOINT TREATMENT

A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
   1. Level 1: Fire-resistance-rated wall areas above finished ceilings, whether or not accessible in the completed construction.

B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
   1. Feather coats of joint compound so that camber is maximum 1/32 inch (0.8 mm).

3.07 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet (3 mm in 3 m) in any direction.

END OF SECTION

SECTION 09 30 00
TILING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Tile for wall applications.

B. Tile for shower receptors.

1.02 RELATED REQUIREMENTS

A. Section 07 92 00 - Joint Sealants: Sealing joints between tile work and adjacent construction and fixtures.

B. Section 09 05 61 - Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.

C. Section 09 21 16 - Gypsum Board Assemblies: Tile backer board.

1.03 REFERENCE STANDARDS

A. ANSI A108/A118/A136 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 2024.

B. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar; 2023.

C. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation; 2019.

D. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2022.

E. TCNA (HB-GP) - Handbook for Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs Installation; 2025-2026.

F. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2025.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements 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. Certificate: Certify products of this section meet or exceed specified requirements.

F. Installer's qualification statement.
   1. Submit documentation of Natural Stone Institute Accreditation.

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. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Tile: 1 percent of each size, color, and surface finish combination.

1.05 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: Natural Stone Institute (NSI) Accredited Commercial B Contractor, light commercial: www.naturalstoneinstitute.org/#sle.

C. Installer Qualifications:

1.06 DELIVERY, STORAGE, AND HANDLING

A. See Section 01 74 19 - Construction Waste Management and Disposal for packaging waste requirements.

B. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.07 FIELD CONDITIONS

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Tile:
1. Basis of Design; Dal-Tile Corporation; www.daltile.com: See drawing schedule.
2. Emser Tile, LLC: www.emser.com.
3. Florim USA: www.milestonetiles.com.
4. Substitutions: See Section 01 60 00 - Product Requirements.
5. Source Limitations: Furnish products produced by single manufacturer and obtained from single supplier.

B. Setting Materials:
1. Basis of Design; Mapei Corporation; www.mapei.com.
2. Merkrete, by Parex USA, Inc: www.merkrete.com.
3. Schluter-Systems: www.schluter.com.
4. Substitutions: See Section 01 60 00 - Product Requirements.
5. Source Limitations: Furnish products produced by single manufacturer and obtained from single supplier.

C. Grout:
1. Basis of Design; Mapei Corporation; www.mapei.com.
2. TEC Specialty Products LLC: www.tecspecialty.com.
3. Merkrete, by Parex USA, Inc: www.merkrete.com.
4. Substitutions: See Section 01 60 00 - Product Requirements.
5. Source Limitations: Furnish products produced by single manufacturer and obtained from single supplier.

2.02 TILE

A. Ceramic Mosaic Tile, Type PFT-3: ANSI A137.1 standard grade.
1. Color: As indicated on drawings.

B. Glazed Wall Tile, Type CT 1-4: ANSI A137.1 standard grade.
1. Color: As indicated on drawings.

C. Porcelain Tile, Type PFT 1-2: ANSI A137.1 standard grade.
1. Color: As indicated on drawings.
2. Trim Units: Matching cove base shapes in sizes coordinated with field tile.

2.03 SETTING MATERIALS

A. Provide setting and grout materials from same manufacturer.

B. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4.
1. Products:
a. Basis of Design; Mapei Corporation; Adesilex P10 Mosaic & Glass Tile; www.mapei.com.
b. TEC Specialty Products LLC: www.tecspecialty.com.
c. Merkrete, by Parex USA, Inc: www.merkrete.com/.
d. Substitutions: See Section 01 60 00 - Product Requirements.

2.04 GROUTS

A. Provide setting and grout materials from same manufacturer.

B. High Performance Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
   1. Applications: Use where indicated on drawings and where no other type of grout is indicated.
   2. Use sanded grout for joints 1/8 inch (3.2 mm) wide and larger; use unsanded grout for joints less than 1/8 inch (3.2 mm) wide.
   3. Color: As selected by Architect from manufacturer's full line.
   4. Products:
      a. Basis of Design; Mapei Corporation; Ultracolor Plus FA; www.mapei.com.
      b. TEC Specialty Products LLC: www.tecspecialty.com.
      c. Merkrete, by Parex USA, Inc: www.merkrete.com.
      d. Substitutions: See Section 01 60 00 - Product Requirements.

2.05 MAINTENANCE MATERIALS

A. Grout Sealer: Liquid-applied, moisture and stain protection for existing or new Portland cement grout.
   1. Composition: Water-based colorless silicone.
   2. Products:
      a. Basis of Design; STONETECH, a Division of LATICRETE International, Inc; STONETECH Heavy Duty Grout Sealer; www.laticrete.com.
      b. Merkrete, by Parex USA, Inc: www.merkrete.com.
      c. Rust-Oleum Corporation; Miracle Sealants 511 H20 Plus: www.rustoleum.com
      d. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify subfloor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive tile.

B. Verify wall surfaces are smooth and flat within 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.

D. Cementitious Subfloor Surfaces: Verify that substrates are ready for tiling installation by testing for moisture and alkalinity (pH).
   1. Obtain instructions if test results are not within limits recommended by tiling material manufacturer and setting material manufacturer.

3.02 PREPARATION

A. Vacuum clean surfaces and damp clean.

B. Seal substrate surface cracks with filler.

3.03 INSTALLATION - GENERAL

A. Install tile, thresholds, and stair treads and grout in accordance with applicable requirements of ANSI A108/A118/A136, manufacturer's instructions, and TCNA (HB) or TCNA (HB-GP) recommendations, as applicable.

B. Lay tile to pattern indicated on drawings. 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. Sound tile after setting. Replace hollow sounding units.

G. Keep control and expansion joints free of mortar, grout, and adhesive.

H. Prior to grouting, allow installation to completely cure; minimum of 48 hours.

I. Grout tile joints unless otherwise indicated on drawings. Use standard grout unless otherwise indicated on drawings.

J. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.04 CLEANING

A. Clean tile and grout surfaces.

3.05 PROTECTION

A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION

SECTION 09 51 00
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Acoustical units.

B. Suspension systems.

1.02 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025a.

B. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.

C. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019 (Reapproved 2025).

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

E. 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; 2024a.

F. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2023.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements 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. Manufacturer's Instructions: Indicate special procedures and perimeter conditions requiring special attention.

E. Designer's qualification statement.

F. Manufacturer's qualification statement.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements for additional provisions.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design; Armstrong World Industries, Inc.; www.armstrongceilings.com.

B. USG Corporation: www.usg.com.

C. Rockfon: www.rockfon.com.

D. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

A. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E84.

2.03 ACOUSTICAL UNITS

A. Acoustical Units - General: ASTM E1264.

B. Acoustical Panels: With the following characteristics:
   1. Classification: ASTM E1264, Type A.
   2. Size: 24 by 24 inches (610 by 610 mm).
   3. Thickness: 3/4 inch (19 mm).
   4. Panel Edge: Square.
   5. Suspension System: Exposed grid.

6. Products:
    a. Basis of Design; Armstrong World Industries, Inc; Cirrus; www.armstrongceilings.com.
    b. USG Corporation: www.usg.com.
    c. Rockfon: www.rockfon.com.
    d. Substitutions: See Section 01 60 00-Product Requirements.

2.04 SUSPENSION SYSTEMS

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.
    1. Materials:
        a. Galvanized Steel Sheet: ASTM A653/A653M, G30 (Z90) coating.

B. Exposed Suspension System: Hot-dip 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.
    4. Color: White.
    5. Products:
        a. Basis of Design; Armstrong World Industries, Inc; Prelude Plus; www.armstrongceilings.com.
        b. USG Corporation: www.usg.com.
        c. Rockfon: www.rockfon.com.
        d. Substitutions: See Section 01 60 00-Product Requirements.

2.05 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.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers does not interfere with other work.

3.02 PREPARATION

A. Install after major above-ceiling work is complete.

B. Coordinate location of hangers with other work.

3.03 INSTALLATION - SUSPENSION SYSTEMS

A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions, as supplemented in this section.

B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

C. Where ducts or other equipment prevent regular spacing of hangers, reinforce nearest affected hangers and related carrying channels to span extra distance.

D. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

E. Support fixture loads using supplementary hangers located within 6 inches (152 mm) of each corner, or support components independently.

F. Do not eccentrically load system or induce rotation of runners.

3.04 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. Fit border trim neatly against abutting surfaces.

D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

E. Cutting Acoustical Units:
   1. Make field cut edges of same profile as factory edges.

3.05 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.

3.06 REPAIR

A. Replace damaged or abraded components.

3.07 CLEANING

A. Clean surfaces.

END OF SECTION

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SECTION 09 90 00
PAINTING AND COATING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Interior painting and coating systems.

C. Scope:
   1. Finish surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
      a. Interior:
         1) Drywall: Walls, ceilings, gypsum board, and similar items.

1.02 REFERENCE STANDARDS

A. SCAQMD 1113 - Architectural Coatings; 1977, with Amendment (2016).

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:
   1. Product characteristics.
   2. Surface preparation instructions and recommendations.
   3. Primer requirements and finish specification.
   4. Storage and handling requirements and recommendations.
   5. Application methods.
   6. Clean-up information.

C. Samples: Submit four paper draw down samples, 8-1/2 by 11 inches (216 by 279 mm) in size, illustrating range of colors available for each finishing product specified.

D. Applicator's qualification statement.

E. Maintenance Data: Submit coating maintenance manual including finish schedule showing where each product/color/finish was used, product technical data sheets, safety data sheets (SDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements for additional provisions.
   2. Extra Paint and Finish Materials: 1 gallon (4 L) of each color; from the same product run, store where directed.
   3. Label each container with color in addition to manufacturer's label.

1.04 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 3 years experience and approved by manufacturer.

1.05 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.

1.06 FIELD CONDITIONS

A. Do not apply materials when environmental conditions are outside the ranges required by manufacturer.

B. Follow manufacturer's recommended procedures for producing the best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design; Sherwin-Williams Company (The); www.sherwin-williams.com: See drawing schedule.

B. PPG Paints: www.ppgpaints.com.

C. Benjamin Moore: www.benjaminmoore.com.

D. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 PAINTINGS AND COATINGS

A. General:
   1. Provide factory-mixed coatings unless otherwise indicated.
   2. Do not reduce, thin, or dilute coatings or add materials to coatings unless specifically indicated in manufacturer's instructions.

B. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

2.03 PAINT SYSTEMS - INTERIOR

A. Drywall: Walls, ceilings, gypsum board, and similar items.
   1. Latex Systems:
      a. Semi-Gloss Finish:
         1) 1st Coat: Sherwin-Williams ProMar 200 Zero VOC Interior Latex Primer, B28W2600: www.sherwin-williams.com.
         2) 2nd and 3rd Coat: Sherwin-Williams ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series: www.sherwin-williams.com.

PART 3 EXECUTION

3.01 EXAMINATION

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Apply products in accordance with manufacturer's written instructions.

C. Apply coatings at spread rate required to achieve manufacturer's recommended dry film thickness.

3.04 PRIMING

A. Apply primer to all surfaces unless specifically not required by coating manufacturer. Apply in accordance with coating manufacturer's instructions.

B. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to top coat manufacturers.

3.05 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

B. Clean surfaces immediately of overspray, splatter, and excess material.

C. After coating has cured, clean and replace finish hardware, fixtures, and fittings previously removed.

3.06 PROTECTION

A. Protect finished coatings from damage until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

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SECTION 10 14 23
PANEL SIGNAGE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Panel signage.

1.02 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's product literature for each type of panel sign, indicating styles, font, foreground and background colors, locations, and overall dimensions of each sign.

C. Shop Drawings:
   1. Include dimensions, locations, elevations, materials, text and graphic layout, attachment details, and schedules.

D. Samples: Submit two samples of each type of sign, of size similar to that required for project, indicating sign style, font, and method of attachment.

E. Manufacturer's Installation Instructions: Include installation templates and attachment devices.

F. Manufacturer's qualification statement.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1.04 QUALITY ASSURANCE

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

1.05 DELIVERY, STORAGE, AND HANDLING

A. Package signs as required to prevent damage before installation.

B. Package room and door signs in sequential order of installation, labeled by floor or building.

1.06 FIELD CONDITIONS

A. Do not install tape adhesive when ambient temperature is lower than recommended by manufacturer.

B. Maintain minimum ambient temperature during and after installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Panel Signage:
   1. Basis of Design; Inpro Corporation; www.inprocorp.com.
   2. Best Sign Systems, Inc: www.bestsigns.com.
   3. Mohawk Sign Systems, Inc: www.mohawksign.com.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 REGULATORY REQUIREMENTS

A. Accessibility Requirements: Comply with ADA Standards and ICC A117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most restrictive requirements.

2.03 PANEL SIGNAGE

A. Panel Signage:
   1. Application: Room and door signs.

2. Description: Flat signs with engraved panel media, tactile characters.
3. Sign Size: As indicated on drawings.
4. Total Thickness: 1/8 inch (3 mm).
5. Color and Font, unless otherwise indicated:
   a. Character Font: Helvetica, Arial, or other sans serif font.
   b. Character Case: Upper and lower case (title case).
   c. Background Color: As scheduled.
   d. Character Color: Contrasting color.
6. Material: Laminated colored plastic engraved through face to expose core as background color.
7. Profile: Flat panel without frame.
8. Tactile Letters: Raised 1/32 inch minimum.
9. Braille: Grade II, ADA-compliant.

2.04 SIGNAGE APPLICATIONS

A. Room and Door Signs:
   1. Rest Rooms: Identify with pictograms, the names "MEN" and "WOMEN", room numbers to be determined later, and braille.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

B. Notify Architect if conditions are not suitable for installation of signs; do not proceed until conditions are satisfactory.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install with horizontal edges level.

C. Locate panel signs and mount at heights indicated on drawings and in accordance with ADA Standards and ICC A117.1.

D. Protect from damage until date of substantial completion; repair or replace damaged items.

END OF SECTION

SECTION 10 21 13.19
PLASTIC TOILET COMPARTMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Solid plastic toilet compartments.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Blocking and supports.

B. Section 10 28 00 - Toilet, Bath, and Laundry Accessories.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

C. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

1.04 ADMINISTRATIVE REQUIREMENTS

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on panel construction, hardware, and accessories.

C. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall, floor, and ceiling supports, and door swings.

D. Samples: Two sample blocks, 6 by 6 inches (152 by 152 mm) in size, illustrating partition panel finish, color, and sheen.

E. Manufacturer's Instructions: Indicate special procedures and perimeter conditions requiring special attention.

F. Designer's qualification statement.

G. Manufacturer's qualification statement.

H. Executed warranty.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with minimum 3 years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. See Section 01 74 19 - Construction Waste Management and Disposal for packaging waste requirements.

B. Deliver, store, and handle materials and products in accordance with manufacturer's instructions and recommendations and industry standards.

C. Store products indoors in manufacturer's or fabricator's original containers and packaging, with labels clearly identifying product name and manufacturer. Protect products from damage.

D. Lay cartons flat; support to ensure flatness and prevent damage to prefinished surfaces.

E. Do not store where ambient temperature exceeds 120 degrees F (49 degrees C).

1.08 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Solid Plastic Toilet Compartments:

1. Basis of Design; Hadrian: www.hadrian-inc.com.
2. ASI Global Partitions: www.asi-globalpartitions.com.
3. Scranton Products - Hiny Hiders; www.scrantonproducts.com.
4. Substitutions: Section 01 60 00 - Product Requirements.

2.02 DESIGN CRITERIA

A. Accessibility: Comply with ICC A117.1 and ADA Standards.

2.03 SOLID PLASTIC TOILET COMPARTMENTS

A. General Description: Factory-fabricated doors, pilasters, and divider panels made of solid, molded, high-density polyethylene (HDPE); floor-mounted, unbraced.

B. Color: As listed in finish schedule.

C. Doors:
1. Thickness: 1 inch (25 mm).
2. Width: 24 inches (610 mm).
3. Width for Handicapped Use: 36 inches (915 mm), outswinging.
4. Height: 55 inches (1397 mm).

D. Panels:
1. Thickness: 1 inch (25 mm).
2. Height: 55 inches (1397 mm).

E. Pilasters:
1. Thickness: 1 inch (25 mm).
2. Width: As required to fit space; minimum 3 inches (76 mm).

2.04 FABRICATION

A. Fabricate toilet compartment components to sizes indicated in shop drawings.

B. Coordinate requirements and provide cutouts for through-partition toilet accessories.

C. Provide shoes and caps at pilasters and posts to conceal anchorage, supports, and leveling mechanisms.

D. Provide manufacturer's standard corrosion-resistant supports, leveling mechanisms, anchors, and anchoring assemblies for pilasters and posts.

E. Floor-Anchored, Overhead-Braced Units: Provide supports, leveling mechanisms, and anchors at pilasters to suit floor conditions.

F. Ceiling-Hung Units:
1. Provide anchoring assemblies with leveling adjustment nuts at pilasters for connection to structural steel support, with two adjustable hanging studs above finished ceiling.
2. Provide assemblies that support pilasters from structural steel without transmitting load to finished ceiling.

G. Urinal and Entrance Screen Posts: Provide anchoring assemblies with leveling adjustment at tops and bottoms of posts.

2.05 MATERIALS

A. High-Density Polyethylene (HDPE):
1. Composition: Formed from waterproof, nonabsorbent, HDPE resins.
2. Properties: Mark-resistant, self-lubricating surface.
3. Material Fire Ratings: ICC (IBC), Class B.

2.06 ACCESSORIES

A. Ceiling Attachment: Use two adjustable hanging studs, attached to above-ceiling framing.

B. Headrails: Extruded aluminum, anti-grip profile.
1. Size: Manufacturer's standard size.

C. Wall and Pilaster Brackets: Stainless steel; manufacturer's standard type for conditions indicated on drawings.

D. Attachments, Screws, and Bolts: Stainless steel, tamper-proof type.

E. Hinges: Stainless steel, manufacturer's standard finish.

F. Door Hardware: Stainless steel, manufacturer's standard finish.
   1. Door Latch: Slide type with exterior emergency access feature.
   2. Provide door pull for outswinging doors.

G. Toilet Accessories: See Section 10 28 00.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify dimensions, tolerances, and interfaces with other work.

B. Verify actual locations of toilet fixtures, walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication.

C. Verify spacing of and between plumbing fixtures.

D. Verify location of built-in framing, anchorage, and bracing.

3.02 INSTALLATION

A. Install partitions secure, rigid, plumb, and level in accordance with manufacturer's written instructions.

B. Maintain 3/8-to-1/2-inch (10 to 12 mm) space between wall and panels and between wall and end pilasters.

C. Attach panel brackets securely to walls using anchor devices.

D. Attach panels and pilasters to brackets. Locate headrail joints at pilaster center lines.

3.03 TOLERANCES

A. Maximum Variation from True Position: 1/4 inch (6 mm).

B. Maximum Variation from Plumb: 1/8 inch (3 mm).

3.04 ADJUSTING

A. Adjust and align hardware to uniform clearance at vertical edge of doors, not exceeding 3/16 inch (5 mm).

B. Adjust hinges to position doors in partially open position when unlatched. Return outswinging doors to closed position.

C. Adjust adjacent components for consistency of line or plane.

END OF SECTION

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SECTION 10 28 00
TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Commercial toilet accessories.

B. Commercial shower and bath accessories.

C. Diaper changing stations.

1.02 RELATED REQUIREMENTS

A. Section 09 30 00 - Tiling: Ceramic washroom accessories.

B. Section 10 21 13.19 - Plastic Toilet Compartments.

C. Section 22 40 00 - Plumbing Fixtures: Under-lavatory pipe and supply covers.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2025.

C. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2024.

D. ASTM C1036 - Standard Specification for Flat Glass; 2025.

E. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror; 2024.

F. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with the placement of internal wall reinforcement, concealed ceiling supports, and reinforcement of toilet partitions to receive anchor attachments.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.

C. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Commercial Toilet, Shower, and Bath Accessories:
   1. Basis of Design; Bobrick Washroom Equipment Company; www.bobrick.com: See drawing schedule.
   2. Bradley Corporation: www.bradleycorp.com.
   3. Georgia-Pacific Professional: www.gppro.com.
   4. Substitutions: Section 01 60 00 - Product Requirements.

B. Diaper Changing Stations:
   1. Basis of Design; Koala Kare Products; www.koalabear.com: See drawing schedule.
   2. American Specialties, Inc; www.americanspecialties.com.
   3. Bradley Corporation; www.bradleycorp.com.
   4. Substitutions: 01 60 00 - Product Requirements.

C. Provide products of each category type by single manufacturer.

2.02 MATERIALS

A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
   1. Grind welded joints smooth.

B. Keys: Provide 2 keys for each accessory to Owner; master key lockable accessories.

C. Stainless Steel Sheet: ASTM A666/A666M, Type 304.

D. Stainless Steel Tubing: ASTM A269/A269M, Grade TP304 or TP316.

E. Mirror Glass: Annealed float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.

F. Fasteners, Screws, and Bolts: Hot dip galvanized; tamper-proof; security type.

2.03 FINISHES

2.04 COMMERCIAL TOILET ACCESSORIES

A. Refer to Toilet Accessory Schedule, Sheet A101, Toilet Room New Work Floor Plans

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify exact location of accessories for installation.

C. Verify that field measurements are as indicated on drawings.

3.02 PREPARATION

A. Deliver inserts and rough-in frames to site for timely installation.

B. Provide templates and rough-in measurements as required.

3.03 INSTALLATION

A. Install accessories in accordance with manufacturers' instructions in locations indicated on drawings.

B. Install plumb and level, securely and rigidly anchored to substrate.

C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

3.04 PROTECTION

A. Protect installed accessories from damage due to subsequent construction operations.

END OF SECTION

SECTION 12 32 00
MANUFACTURED WOOD CASEWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Manufactured custom casework, with cabinet hardware.

B. Special purpose units.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Blocking and nailers for anchoring casework.

B. Section 07 92 00 - Joint Sealants: Sealing joints between casework and countertops and adjacent walls, floors, and ceilings.

C. Section 09 21 16 - Gypsum Board Assemblies: Reinforcements in metal-framed partitions for anchoring casework.

D. Section 09 22 16 - Non-Structural Metal Framing: Reinforcements in metal-framed partitions for anchoring casework.

E. Section 12 36 00 - Countertops: Additional requirements for countertops.

F. Section 22 40 00 - Plumbing Fixtures: Sinks and fittings installed in casework.

G. Section 26 27 26 - Wiring Devices: Switches, receptacles installed in casework.

1.03 REFERENCE STANDARDS

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition; 2014, with Errata (2016).

B. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards; 2021, with Errata.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Component dimensions, configurations, construction details, joint details, attachments.

C. Shop Drawings: Indicate casework types, sizes, and locations, using large scale plans, elevations, and cross sections. Include rough-in and anchors and reinforcements, placement dimensions and tolerances, clearances required, and keying information.

D. Samples for Finish Selection: Fully finished, for color selection. Minimum sample size: 2 inches by 3 inches (51 mm by 75 mm).
   1. Plastic laminate samples, for color, texture, and finish selection.

E. Casework Samples: Representative of types in the project.
   1. Specialty Cabinet: Under sink surrounds. Cabinet with door and specified hardware. Type indicated on drawings.

F. Maintenance Data: Manufacturer's recommendations for care and cleaning.

G. Finish touch-up kit for each type and color of materials provided.

1.05 QUALITY ASSURANCE

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

B. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of documented experience and approved by manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect items provided by this section, including finished surfaces and hardware items during handling and installation. For metal surfaces, use polyethylene film or other protective material standard with the manufacturer.

B. Acceptance at Site:
   1. Do not deliver or install casework until the conditions specified under Part 3, Examination Article of this section have been met. Products delivered to sites that are not enclosed and/or improperly conditioned will not be accepted if warping or damage due to unsatisfactory conditions occurs.

C. Storage:
   1. Store casework in the area of installation. If necessary, prior to installation, temporarily store in another area, meeting the environmental requirements specified under Part 3, "Site Verification of Conditions" Article of this section.

1.07 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Correct defective Work within a five year period after Date of Substantial Completion, at no additional cost to Owner. Defects include, but are not limited to:
   1. Ruptured, cracked, or stained finish coating.
   2. Discoloration or lack of finish integrity.
   3. Cracking or peeling of finish.
   4. Failure of hardware.

PART 2 PRODUCTS

2.01 CASEWORK, GENERAL

A. Quality Standard: AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.

B. Plastic Laminate Faced Cabinets: Custom Grade.

2.02 FABRICATION

A. Assembly: Shop assemble casework items for delivery to site in units easily handled and to permit passage through building openings.

B. Construction: As required for selected grade.

C. Access Panels: Where indicated, for maintenance of utility service and mechanical and electrical components.

D. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.

2.03 PLASTIC-LAMINATE-CLAD CASEWORK

A. Plastic-Laminate-Clad Casework: Solid wood and wood panel construction; each unit self-contained and not dependent on adjacent units or building structure for rigidity; in sizes necessary to avoid field cutting except for scribes and filler panels. Include adjustable levelers for base cabinets.
   1. Style: Flush overlay. Ease doors and drawer fronts slightly at edges.
   2. Cabinet Nominal Dimensions: Unless otherwise indicated, provide cabinets of widths and heights indicated on drawings, and with following front-to-back dimensions:
      a. Base Cabinets: 22 inches (559 mm).
      b. Tall Cabinets: 22 inches (559 mm).
      c. Wall Cabinets: 16 inches (406 mm).
   3. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline.
      a. Finish: Matte or suede, gloss rating of 5 to 20.

2.04 MATERIALS

A. Wood-Based Materials:

1. Solid Wood: Air-dried to 4.5 percent moisture content, then tempered to 6 percent moisture content before use.

PART 3 EXECUTION

3.01 PREPARATION

A. Large Components: Ensure that large components can be moved into final position without damage to other construction.

3.02 EXAMINATION

A. Site Verification of Environmental Conditions:
   1. Do not deliver casework until the following conditions have been met:
      a. Building has been enclosed (windows and doors sealed and weather-tight).
      b. An operational HVAC system that maintains temperature and humidity at occupancy levels has been put in place.
      c. Ceiling, overhead ductwork, piping, and lighting have been installed.
      d. Installation areas do not require further “wet work” construction.

B. Verify adequacy of support framing and anchors.

C. Verify that service connections are correctly located and of proper characteristics.

3.03 INSTALLATION

A. Perform installation in accordance with manufacturer's instructions.

B. Use anchoring devices to suit conditions and substrate materials encountered. Use concealed fasteners to the greatest degree possible. Use exposed fasteners only where allowed by approved shop drawings, or where concealed fasteners are impracticable.

C. Set casework items plumb and square, securely anchored to building structure.

D. Align cabinets to adjoining components, install filler and/or scribe panels where necessary to close gaps.

E. Fasten together cabinets in continuous runs, with joints flush, uniform and tight. Misalignment of adjacent units not to exceed 1/16 inch (1.6 mm). In addition, do not exceed the following tolerances:
   1. Variation of Tops of Base Cabinets from Level: 1/16 inch (1.6 mm) in 10 feet (3 m).
   2. Variation of Faces of Cabinets from a True Plane: 1/8 inch (3 mm) in 10 feet (3 m).
   3. Variation of Adjacent Surfaces from a True Plane (Lippage): 1/32 inch (0.8 mm).
   4. Variation in Alignment of Adjacent Door and Drawer Edges: 1/16 inch (1.6 mm).

F. Base Cabinets: Fasten cabinets to service space framing and/or wall substrates, with fasteners spaced not more than 16 inches (407 mm) on center. Bolt adjacent cabinets together with joints flush, tight, and uniform.

G. Install hardware uniformly and precisely.

H. Countertops: Install countertops intended and furnished for field installation in one true plane, with ends abutting at hairline joints, and no raised edges.

I. Replace units that are damaged, including those that have damaged finishes.

3.04 ADJUSTING

A. Adjust operating parts, including doors, drawers, hardware, and fixtures to function smoothly.

3.05 CLEANING

A. Clean casework and other installed surfaces thoroughly.

3.06 PROTECTION

A. Do not permit finished casework to be exposed to continued construction activity.

B. Protect casework and countertops from ongoing construction activities. Prevent workmen from standing on, or storing tools and materials on casework or countertops.

C. Repair damage, including to finishes, that occurs prior to Date of Substantial Completion, using methods prescribed by manufacturer; replace units that cannot be repaired to like-new condition.

END OF SECTION

SECTION 12 36 00
COUNTERTOPS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Countertops for architectural cabinet work.

1.02 RELATED REQUIREMENTS

1.03 REFERENCE STANDARDS

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition; 2014, with Errata (2016).

B. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards; 2021, with Errata.

C. ISFA 2-01 - Classification and Standards for Solid Surfacing Material; 2013.

D. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements 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. Test Reports: Chemical resistance testing, showing compliance with specified requirements.

F. Certificate: Submit labels and certificates required by quality assurance and quality control programs.

G. NSI Fabricator Qualification: Documentation of Natural Stone Institute Accreditation.

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.

1.05 QUALITY ASSURANCE

A. Fabricator Qualifications: Natural Stone Institute (NSI) Accredited Natural Stone Fabricator; www.naturalstoneinstitute.org/#sle.

B. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of documented experience.

C. Quality Certification:
   1. Provide labels or certificates indicating that the installed work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
   2. Provide designated labels on shop drawings as required by certification program.
   3. Provide designated labels on installed products as required by certification program.
   4. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.

1.06 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.

PART 2 PRODUCTS

2.01 COUNTERTOPS

A. Solid Surfacing Countertops: Solid surfacing sheet or plastic resin casting over continuous substrate.
   1. Flat Sheet Thickness: 1/2 inch (12 mm), minimum.
   2. Solid Surfacing Sheet and Plastic Resin Castings: Complying with ISFA 2-01 and NEMA LD 3; acrylic or polyester 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. Manufacturers:
         1) Basis of Design; Dupont; www.corian.com: See drawing schedule.
         2) Formica Corporation: www.formica.com.
         3) Meganite, Inc: www.meganite.com.
         4) Substitutions: See Section 01 60 00 - Product Requirements.
      b. Finish on Exposed Surfaces: Matte, gloss rating of 5 to 20.
      c. Color and Pattern: As indicated on drawings.
   3. Other Components Thickness: 1/2 inch (12 mm), minimum.
   4. Back and End Splashes: Same sheet material, square top; minimum 4 inches (102 mm) high.

2.02 MATERIALS

A. Adhesives: Chemical resistant waterproof adhesive as recommended by manufacturer of materials being joined.

B. Joint Sealant: Mildew-resistant silicone sealant, white.

2.03 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.
   3. Prepare all cutouts accurately to size; replace tops having improperly dimensioned or unnecessary cutouts or fixture holes.

B. Provide back/end splash wherever counter edge abuts vertical surface unless otherwise indicated.
   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 (3657 mm) long in one piece; join pieces with adhesive sealant in accordance with manufacturer's recommendations and instructions.

PART 3 EXECUTION

3.01 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.

3.02 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.

3.03 INSTALLATION

A. Securely attach countertops to cabinets using concealed fasteners. Make flat surfaces level; shim where required.

B. Seal joint between back/end splashes and vertical surfaces.

3.04 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.

3.05 CLEANING

3.06 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

SECTION 22 05 23
GENERAL-DUTY VALVES FOR PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Ball valves.

B. Check valves.

1.02 RELATED REQUIREMENTS

A. Section 07 84 00 - Firestopping.

B. Section 22 05 53 - Identification for Plumbing Piping and Equipment.

C. Section 22 07 19 - Plumbing Piping Insulation.

D. Section 22 10 05 - Plumbing Piping.

1.03 ABBREVIATIONS AND ACRONYMS

A. CWP: Cold working pressure.

B. EPDM: Ethylene propylene copolymer rubber.

C. NBR: Acrylonitrile-butadiene, Buna-N, or nitrile rubber.

D. NRS: Non-rising stem.

E. OS&Y: Outside screw and yoke.

F. PTFE: Polytetrafluoroethylene.

G. RS: Rising stem.

H. TFE: Tetrafluoroethylene.

I. WOG: Water, oil, and gas.

1.04 REFERENCE STANDARDS

A. ASME B1.20.1 - Pipe Threads, General Purpose, Inch; 2013 (Reaffirmed 2018).

B. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250; 2026.

C. ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves; 2022, with Errata (2023).

D. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2021.

E. ASME B16.34 - Valves — Flanged, Threaded, and Welding End; 2025.

F. ASTM A536 - Standard Specification for Ductile Iron Castings; 2024.

G. ASTM B61 - Standard Specification for Steam or Valve Bronze Castings; 2015 (Reapproved 2021).

H. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings; 2017 (Reapproved 2025).

I. MSS SP-72 - Ball Valves with Flanged or Butt-Welding Ends for General Service; 2010a.

J. MSS SP-80 - Bronze Gate, Globe, Angle, and Check Valves; 2019.

K. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends; 2010, with Errata .

L. NSF 61 - Drinking Water System Components - Health Effects; 2025, with Addendum

M. NSF 372 - Drinking Water System Components - Lead Content; 2024.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on valves including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.

1.06 QUALITY ASSURANCE

A. Manufacturer:
   1. Obtain valves for each valve type from single manufacturer.
   2. Company must specialize in manufacturing products specified in this section, with not less than three years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Prepare valves for shipping as follows:
   1. Minimize exposure of operable surfaces by setting plug and ball valves to open position.
   2. Protect valve parts exposed to piped medium against rust and corrosion.
   3. Protect valve piping connections such as grooves, weld ends, threads, and flange faces.
   4. Secure check valves in either the closed position or open position.

B. Use the following precautions during storage:
   1. Maintain valve end protection and protect flanges and specialties from dirt.
      a. Provide temporary inlet and outlet caps.
      b. Maintain caps in place until installation.
   2. Store valves in shipping containers and maintain in place until installation.
      a. Store valves indoors in dry environment.
      b. Store valves off the ground in watertight enclosures when indoor storage is not an option.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. See drawings for specific valve locations.

B. Listed pipe sizes shown using nominal pipe sizes (NPS) and nominal diameter (DN).

C. Provide the following valves for the applications if not indicated on drawings:
   1. Shutoff: Ball, butterfly, gate.
   2. Swing Check (Pump Outlet):
      a. 2 inch and Smaller: Bronze swing check valves with bronze or nonmetallic disc.

D. Required Valve End Connections for Non-Wafer Types:
   1. Steel Pipe:
      a. 2-1/2 inch to 4 inch: Grooved or flanged ends except where threaded valve-end option is indicated in valve schedules below.
   2. Copper Tube:
      a. 2 inch and Smaller: Threaded ends except where solder-joint valve-end option is indicated in valve schedules below.

E. Domestic, Hot and Cold Water Valves:
   1. 2 inch and Smaller:
      a. Bronze: Provide with solder-joint ends.
      b. Ball: Two piece, full port, bronze with bronze trim.
      c. Bronze Swing Check: Class 125, bronze disc.
   2. 2-1/2 inch and Larger:
      a. Iron, 2-1/2 inch to 4 inch: Provide with threaded or flanged ends.
      b. Iron Ball: Class 150.

2.02 GENERAL REQUIREMENTS

A. Valve Pressure and Temperature Ratings: No less than rating indicated; as required for system pressures and temperatures.

B. Valve Sizes: Match upstream piping unless otherwise indicated.

C. Valve Actuator Types:
   1. Hand Lever: Quarter-turn valves 6 inch and smaller.

D. Insulated Piping Valves: With 2 inch stem extensions and the following features:
   1. Ball Valves: Extended operating handle of non-thermal-conductive material, and protective sleeve that allows operation of valve without breaking the vapor seal or disturbing insulation.

E. Valve-End Connections:
   1. Threaded End Valves: ASME B1.20.1.
   2. Flanges on Iron Valves: ASME B16.1 for flanges on iron valves.
   3. Solder Joint Connections: ASME B16.18.

F. General ASME Compliance:
   1. Ferrous Valve Dimensions and Design Criteria: ASME B16.10 and ASME B16.34.
   2. Solder-joint Connections: ASME B16.18.

G. Potable Water Use:
   1. Certified: Approved for use in compliance with NSF 61 and NSF 372.
   2. Lead-Free Certified: Wetted surface material includes less than 0.25 percent lead content.

2.03 BRONZE, BALL VALVES

A. General:
   1. Fabricate from dezincification resistant material.
   2. Copper alloys containing more than 15 percent zinc are not permitted.

B. Two Piece, Full Port with Bronze Trim:
   1. Comply with MSS SP-110.
   2. WSP Rating: 150 psi.
   3. WOG Rating: 600 psi.
   4. Body: Forged bronze or dezincified-brass alloy.
   5. Ends Connections: Pipe thread or solder.
   6. Seats: PTFE.
   7. Stem: Bronze, blowout proof.
   8. Ball: Chrome plated brass.
   9. Operator: Provide stem extension.
   10. Manufacturers:
      a. Apollo Valves: www.apollovalves.com/#sle.
      b. FNW: www.fnw.com/#sle.
      c. NIBCO INC: www.nibco.com/#sle.
      d. Substitutions: See Section 01 60 00 - Product Requirements.

2.04 IRON, BALL VALVES

A. Class 125, Full Port, Stainless Steel Trim:
   1. Comply with MSS SP-72.
   2. CWP Rating: 200 psi.
   3. Body: ASTM A536 Grade 65-45-12, ductile iron.
   4. End Connections: Flanged.
   5. Seats: PTFE.
   6. Ball: Stainless steel.
   7. Operator: Lever with locking handle.

2.05 BRONZE, SWING CHECK VALVES

A. General:
   1. Fabricate from dezincification resistant material.
   2. Copper alloys containing more than 15 percent zinc are not permitted.

B. Class 125:
   1. Pressure and Temperature Rating: MSS SP-80, Type 3.
   2. Design: Y-pattern, horizontal or vertical flow.

3. WOG Rating: 200 psi.
4. Body: Bronze, ASTM B62.
5. End Connections: Threaded.
6. Disc: Bronze.

PART 3 EXECUTION

3.01 EXAMINATION

A. Discard all packing materials and verify that valve interior, including threads and flanges are completely clean without signs of damage or degradation that could result in leakage.

B. Verify valve parts to be fully operational in all positions from closed to fully open.

C. Confirm gasket material to be suitable for the service, to be of correct size, and without defects that could compromise effectiveness.

D. Should valve is determined to be defective, replace with new valve.

3.02 INSTALLATION

A. Provide unions or flanges with valves to facilitate equipment removal and maintenance while maintaining system operation and full accessibility for servicing.

B. Provide separate valve support as required and locate valve with stem at or above center of piping, maintaining unimpeded stem movement.

C. Where valve support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welds.

D. Install check valves where necessary to maintain direction of flow as follows:
   1. Swing Check: Install horizontal maintaining hinge pin level.

END OF SECTION

SECTION 22 05 29
HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Prefabricated trapeze-framed systems.

B. Strut systems for pipe or equipment support.

C. Beam clamps.

D. Pipe hangers.

E. Pipe supports, guides, shields, and saddles.

F. Anchors and fasteners.

1.02 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

B. ASTM A47/A47M - Standard Specification for Ferritic Malleable Iron Castings; 1999, with Editorial Revision (2022).

C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2024.

D. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.

E. ASTM A181/A181M - Standard Specification for Carbon Steel Forgings, for General - Purpose Piping; 2013.

F. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2013.

G. ASTM A395/A395M - Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures; 1999 (Reapproved 2022).

H. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

I. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2014.

J. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2023.

K. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

L. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials; 2024a.

M. FM (AG) - FM Approval Guide; Current Edition.

N. MFMA-4 - Metal Framing Standards Publication; 2004.

O. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2018, with Amendment (2019).

P. UL (DIR) - Online Certifications Directory; Current Edition.

Q. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate sizes and arrangement of supports and bases with the actual equipment and components to be installed.
2. Coordinate the work with other trades to provide additional framing and materials required for installation.
3. Coordinate compatibility of support and attachment components with mounting surfaces at the installed locations.
4. Coordinate the arrangement of supports with ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
5. Notify DEDC, LLC of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:
1. Do not install products on or provide attachment to concrete surfaces until concrete has fully cured in accordance with Section 03 30 00.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for metal channel (strut) framing systems, post-installed concrete and masonry anchors, and thermal insulated pipe supports.

1.05 QUALITY ASSURANCE

A. Comply with applicable building code.

B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Provide required hardware to hang or support piping, equipment, or fixtures with related accessories as necessary to complete installation of plumbing work.

B. Provide hardware products listed, classified, and labeled as suitable for intended purpose.

C. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported. Include consideration for vibration, equipment operation, and shock loads where applicable.

D. Do not use wire, chain, perforated pipe strap, or wood for permanent supports unless specifically indicated or permitted.

E. Materials for Metal Fabricated Supports: Comply with Section 05 50 00.
1. Zinc-Plated Steel: Electroplated in accordance with ASTM B633 unless stated otherwise.
2. Galvanized Steel: Hot-dip galvanized in accordance with ASTM A123/A123M or ASTM A153/A153M unless stated otherwise.

F. Corrosion Resistance: Use corrosion-resistant metal-based materials fully compatible with exposed piping materials and suitable for the environment where installed.
1. Indoor Dry Locations: Use zinc-plated steel or approved equivalent unless otherwise indicated.

2.02 PREFABRICATED TRAPEZE-FRAMED SYSTEMS

A. Prefabricated Trapeze-Framed Metal Strut Systems:
1. MFMA-4 compliant, pre-fabricated, MSS SP-58 Type 59 continuous-slot metal strut channel with associated tracks, fittings, and related accessories.
2. Strut Channel or Bracket Material:
a. Indoor Dry Locations: Use zinc-plated steel or galvanized steel.

3. Minimum Channel Thickness: Steel sheet, 12 gauge, 0.1046 inch.
4. Minimum Channel Dimensions: 1-5/8 inch width by 13/16 inch height.
5. Accessories: Provide bracket covers, cable basket clips, cable tray clips, clamps, conduit clamps, fire-retarding brackets, j-hooks, protectors, and vibration dampeners.

2.03 STRUT SYSTEMS FOR PIPE OR EQUIPMENT SUPPORT

A. Strut Channels:
1. ASTM A653/A653M galvanized steel bracket with clamps for surface mounting of piping or plumbing equipment support.
2. Channel or Bracket Kits: Include rods, brackets, end-fixed fittings, covers, clips, and other related hardware required to complete sectional trapeze section for piping or other support.

B. Hanger Rods:
1. Threaded zinc-plated steel unless otherwise indicated.
2. Minimum Size, Unless Otherwise Indicated or Required:
a. Piping up to 1 inch: 1/4 inch diameter.
b. Piping larger than 1 inch: 3/8 inch diameter.
c. Trapeze Support for Multiple Pipes: 3/8 inch in length.

C. Channel Nuts:
1. Provide carbon steel channel nut with epoxy copper or zinc finish and long, regular, or short spring as indicated on drawings.

2.04 BEAM CLAMPS

A. MSS SP-58 types 19 through 23, 25 or 27 through 30 based on required load.

B. C-Clamp: MSS SP-58 type 23, malleable iron and steel with plain, stainless steel, and zinc finish.

C. Small or Junior Beam Clamp: MSS SP-58 type 19, malleable iron with plain finish. For inverted usage provide manufacturer listed size(s).

D. FM (AG) and UL (DIR) Approved Beam Clamp: MSS SP-58 type 19, plain finish.

E. Provide clamps with hardened steel cup-point set screws and lock-nuts for anchoring in place.

F. Material: ASTM A395/A395M ductile iron, ASTM A36/A36M carbon steel, ASTM A47/A47M malleable iron, ASTM A181/A181M forged steel, or ASTM A283/A283M steel.

2.05 PIPE HANGERS

A. J-Hangers, Adjustable:
1. MSS SP-58 type 5, zinc-plated ASTM A1011/A1011M steel or ASTM A653/A653M carbon steel.

B. Swivel Ring Hangers, Adjustable:
1. MSS SP-58 type 10, epoxy-painted, zinc-colored.
2. Material: ASTM A395/A395M ductile iron, ASTM A36/A36M carbon steel, ASTM A47/A47M malleable iron, ASTM A181/A181M forged steel, or ASTM A283/A283M steel.
3. FM (AG) and UL (DIR) listed for specific pipe size runs and loads.

C. Clevis Hangers, Adjustable:
1. Copper Tube: MSS SP-58 type 1, epoxy-plated copper.
2. Standard-Duty: MSS SP-58 type 1, zinc-colored, epoxy plated.
3. UL (DIR) listed: Pipe sizes 2-1/2 to 8 inch.
4. FM (AG) listed: Pipe sizes 2-1/2 to 8 inch.

2.06 PIPE CLAMPS

A. Riser Clamps:
1. For insulated pipe runs, provide two bolt-type clamps designed for installation under insulation.

2. MSS SP-58 type 1 or 8, carbon steel or steel with epoxy plated, plain, stainless steel, or zinc plated finish.
3. UL (DIR) listed: Pipe sizes 1/2 to 8 inch.

B. Extension Split Pipe Clamp:
1. MSS SP-58 type 12, hinged split ring and yoke roller hanger with epoxy copper or plain finish.
2. Material: ASTM A47/A47M malleable iron or ASTM A36/A36M carbon steel.
3. Provide hanger rod and nuts of the same type and material for a given pipe run.
4. Provide coated or plated hangers to isolate steel hangers from dissimilar metal tube or pipe.

C. Strut Clamps:
1. Pipe Clamp: Two-piece rigid, universal, or outer diameter type, carbon steel with epoxy copper or zinc finish.

2.07 PIPE SUPPORTS, GUIDES, SHIELDS, AND SADDLES

A. Dielectric Barriers: Provide between metallic supports and metallic piping and associated items of dissimilar type; acceptable dielectric barriers include rubber or plastic sheets or coatings attached securely to pipe or item.

B. Stanchions:
1. Material: Malleable iron, ASTM A47/A47M; or carbon steel, ASTM A36/A36M.
2. Provide coated or plated saddles to isolate steel hangers from dissimilar metal tube or pipe.

C. U-Bolts:
1. MSS SP-58 type 24, carbon steel u-bolt for pipe support or anchoring.

D. Pipe Alignment Guides:
1. Pipe Sizes 8 inch and Smaller: Spider or sleeve type.
2. Pipe Sizes 10 inch and Larger: Roller type.

E. Pipe Shields for Insulated Piping:
1. MSS SP-58 type 40, ASTM A1011/A1011M steel or ASTM A653/A653M carbon steel.
2. General Construction and Requirements:
a. Surface Burning Characteristics: Comply with ASTM E84 or UL 723.
b. Shields Material: UV-resistant polypropylene with glass fill.
c. Maximum Insulated Pipe Outer Diameter: 12-5/8 inch.
d. Service Temperature: Minus 40 to 178 degrees F.
e. Pipe shields to be provided at hanger, support, and guide locations on pipe requiring insulation or additional support.

F. Pipe Supports:
1. Material: ASTM A395/A395M ductile iron, ASTM A36/A36M carbon steel, ASTM A47/A47M malleable iron, ASTM A181/A181M forged steel, or ASTM A283/A283M steel.
2. Liquid Temperatures Up to 122 degrees F:
a. Overhead Support: MSS SP-58 types 1, 3 through 12 clamps.
b. Support From Below: MSS SP-58 types 35 through 38.

G. Pipe Supports, Thermal Insulated:
1. General Requirements:
a. Insulated pipe supports to be provided at hanger, support, and guide locations on pipe requiring insulation or additional support.
b. Surface Burning Characteristics: Flame spread index/smoke developed index of 5/30, maximum, when tested in accordance with ASTM E84 or UL 723.
c. Provide pipe supports for 1/2 to 30 inch iron pipes.
d. Insulation inserts to consist of rigid phenolic foam insulation surrounded by 360 degree, PVC jacketing.

2. PVC Jacket:
   a. Pipe insulation protection shields to be provided with ball bearing hinge and locking seam.
   b. Moisture Vapor Transmission: 0.0071 perm inch, when tested in accordance with ASTM E96/E96M.
   c. Minimum Thickness: 60 mil, 0.06 inch.

2.08 ANCHORS AND FASTENERS

A. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.

B. Concrete: Use preset concrete inserts, expansion anchors, or screw anchors.

C. Solid or Grout-Filled Masonry: Use expansion anchors or screw anchors.

D. Beam Ceiling Flanges: ASTM A47/A47M Grade 32510, malleable iron or stainless steel with copper, plain, stainless steel, or zinc finish.

E. Preset Concrete Inserts: Continuous metal strut channel and spot inserts specifically designed to be cast in concrete ceilings, walls, and floors.
   1. Channel Material: Use galvanized steel.
   2. Manufacturer: Same as manufacturer of metal strut channel framing system.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that mounting surfaces are ready to receive support and attachment components.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Provide independent support from building structure. Do not provide support from piping, ductwork, conduit, or other systems.

C. Unless specifically indicated or approved by DEDC, LLC, do not provide support from suspended ceiling support system or ceiling grid.

D. Unless specifically indicated or approved by DEDC, LLC, do not provide support from roof deck.

E. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.

F. Provide thermal insulated pipe supports complete with hangers and accessories. Install thermal insulated pipe supports during the installation of the piping system.

G. Equipment Support and Attachment:
   1. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
   2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
   3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
   4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.

H. Preset Concrete Inserts: Use manufacturer-provided closure strips to inhibit concrete seepage during concrete pour.

I. Secure fasteners according to manufacturer's recommended torque settings.

J. Remove temporary supports.

END OF SECTION

SECTION 22 05 53
IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nameplates.

B. Tags.

C. Pipe markers.

D. Ceiling tacks.

1.02 REFERENCE STANDARDS

A. ASME A13.1 - Scheme for the Identification of Piping Systems; 2023.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

PART 2 PRODUCTS

2.01 PLUMBING COMPONENT IDENTIFICATION GUIDELINE

A. Nameplates:
   1. Control panels, transducers, and other related control equipment products.
   2. Pumps, tanks, filters, water treatment devices, and other plumbing equipment products.

B. Tags:
   1. Piping: 3/4 inch diameter and smaller.
   2. Ceiling tacks placed on lay-in ceiling surface to reference plumbing components.

C. Pipe Markers: 3/4 inch diameter and higher.

2.02 NAMEPLATES

A. Description: Laminated piece with up to three lines of text.
   1. Letter Color: White.
   2. Letter Height: 1/4 inch.
   3. Background Color: Black.

2.03 TAGS

A. Flexible: Vinyl with engraved black letters on light contrasting background color with up to three lines of text. Minimum tag size 1-1/2 inch in diameter.

B. Metal: Brass, 19 gauge 1-1/2 inch in diameter with smooth edges, blank, smooth edges, and corrosion-resistant ball chain. Up to three lines of text.

2.04 PIPE MARKERS

A. Comply with ASME A13.1.

B. Flexible Marker: Factory fabricated, semi-rigid, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid conveyed.

C. Identification Scheme, ASME A13.1:
   1. Primary: External Pipe Diameter, Uninsulated or Insulated.
   2. Secondary: Color scheme per fluid service.
      a. Water; Potable, Cooling, Boiler Feed, and Other: White text on green background.

2.05 CEILING TACKS

A. Description: Steel with 3/4 inch diameter color coded head.

B. Color code as follows:
   1. Plumbing Equipment: Yellow.
   2. Plumbing Valves: Green.

PART 3 EXECUTION

3.01 PREPARATION

A. Degrease and clean surfaces to receive identification products.

3.02 INSTALLATION

A. Install flexible nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.

B. Install tags in clear view and align with axis of piping

C. Install plastic pipe markers in accordance with manufacturer's instructions.

3.03 SCHEDULE

A. Domestic Water: Green Background with White Lettering

END OF SECTION

SECTION 22 07 19
PLUMBING PIPING INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Glass fiber insulation.

B. Jacketing and accessories.

1.02 RELATED REQUIREMENTS

A. Section 07 84 00 - Firestopping.

B. Section 22 10 05 - Plumbing Piping: Placement of hangers and hanger inserts.

1.03 REFERENCE STANDARDS

A. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus; 2019, with Editorial Revision (2023).

B. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation; 2022a.

C. ASTM C795 - Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel; 2008 (Reapproved 2023).

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

E. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials; 2024a.

F. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.

1.07 FIELD CONDITIONS

A. Maintain ambient conditions required by manufacturers of each product.

B. Maintain temperature before, during, and after installation for minimum of 24 hours.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84, UL 723, ASTM E84, or UL 723.

2.02 GLASS FIBER INSULATION

A. Manufacturers:
   1. Johns Manville Corporation: www.jm.com/#sle.
   2. Knauf Insulation: www.knaufusa.com.
   3. Owens Corning Corp: www.owenscorning.com.

4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Insulation: ASTM C547and ASTM C795; rigid molded, noncombustible.
1. K Value: ASTM C177, 0.24 at 75 degrees F.
2. Maximum Service Temperature: 850 degrees F.
3. Maximum Moisture Absorption: 0.2 percent by volume.

C. Insulation: ASTM C547and ASTM C795; semi-rigid, noncombustible, end grain adhered to jacket.
1. K Value: ASTM C177, 0.24 at 75 degrees F.
2. Maximum Service Temperature: 650 degrees F.
3. Maximum Moisture Absorption: 0.2 percent by volume.

D. Vapor Barrier Jacket: White Kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapor transmission when tested in accordance with ASTM E96/E96M of 0.02 perm.

2.03 JACKETING AND ACCESSORIES

A. PVC Plastic Jacket:
1. Jacket: One piece molded type fitting covers and sheet material, off-white color.
a. Minimum Service Temperature: 0 degrees F.
b. Maximum Service Temperature: 150 degrees F.
c. Moisture Vapor Permeability: 0.002 perm inch, maximum, when tested in accordance with ASTM E96/E96M.
d. Thickness: 10 mil, 0.010 inch.
e. Connections: Brush on welding adhesive.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that piping has been tested before applying insulation materials.

B. Verify that surfaces are clean and dry, with foreign material removed.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install in accordance with North American Insulation Manufacturers Association (NAIMA) National Insulation Standards.

C. Exposed Piping: Locate insulation and cover seams in least visible locations.

D. Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump bodies, and expansion joints.

E. Glass fiber insulated pipes conveying fluids below ambient temperature:
1. Provide vapor barrier jackets, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure-sensitive adhesive. Secure with outward clinch expanding staples and vapor barrier mastic.
2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor barrier adhesive or PVC fitting covers.

F. Glass fiber insulated pipes conveying fluids above ambient temperature:
1. Provide standard jackets, with or without vapor barrier, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure-sensitive adhesive. Secure with outward clinch expanding staples.
2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.

G. Inserts and Shields:
1. Application: Piping 1-1/2 inches diameter or larger.
2. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.

3. Insert Location: Between support shield and piping and under the finish jacket.
4. Insert Configuration: Minimum 6 inches long, of same thickness and contour as adjoining insulation; may be factory fabricated.
5. Insert Material: Hydrous calcium silicate insulation or other heavy density insulating material suitable for the planned temperature range.

H. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions. At fire separations, see Section 07 84 00.

I. Pipe Exposed in Mechanical Equipment Rooms or Finished Spaces (less than 10 feet above finished floor): Finish with canvas jacket sized for finish painting.

3.03 SCHEDULES

A. Plumbing Systems:
1. Domestic Hot Water Supply:
a. Glass Fiber Insulation: 1-1/2" and smaller shall be 1” thick.
b. Glass Fiber Insulation: 2" and larger shall be 1-1/2” thick.
2. Domestic Hot Water Recirculation:
a. Glass Fiber Insulation: 1-1/2" and smaller shall be 1” thick.
b. Glass Fiber Insulation: 2" and larger shall be 1-1/2” thick.
3. Domestic Cold Water:
a. Glass Fiber Insulation: Less than 1-1/2" shall be 1/2” thick.
b. Glass Fiber Insulation: 1-1/2" and larger shall be 1” thick.

B. Other Systems:
1. Humidifier Piping: 1" thick.

END OF SECTION

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SECTION 22 10 05
PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sanitary waste piping, buried within 5 feet of building.

B. Sanitary waste piping, above grade.

C. Domestic water piping, above grade.

D. Natural gas piping, above grade.

E. Pipe flanges, unions, and couplings.

F. Pressure reducing valves.
   1. Pressure-temperature valves.

G. Strainers.

1.02 RELATED REQUIREMENTS

A. Section 22 05 29 - Hangers and Supports for Plumbing Piping and Equipment.

B. Section 22 05 53 - Identification for Plumbing Piping and Equipment.

C. Section 22 07 19 - Plumbing Piping Insulation.

1.03 REFERENCE STANDARDS

A. ANSI Z21.22 - American National Standard for Relief Valves for Hot Water Supply Systems; 2015 (Reaffirmed 2020).

B. ASME B16.3 - Malleable Iron Threaded Fittings: Classes 150 and 300; 2021.

C. ASME B16.4 - Gray Iron Threaded Fittings: Classes 125 and 250; 2021.

D. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2021.

E. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2021.

F. ASME B16.51 - Copper and Copper Alloy Press-Connect Pressure Fittings; 2021.

G. ASME B31.1 - Power Piping; 2024.

H. ASME B31.9 - Building Services Piping; 2025.

I. ASME BPVC-IV - Boiler and Pressure Vessel Code, Section IV - Rules for Construction of Heating Boilers; 2023, with Errata (2024).

J. ASME BPVC-IX - Boiler and Pressure Vessel Code, Section IX - Qualification Standard for Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators; 2025, with Errata.

K. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2024.

L. ASTM A234/A234M - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service; 2024.

M. ASTM B32 - Standard Specification for Solder Metal; 2020.

N. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2022.

O. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric); 2020.

P. ASTM B813 - Standard Specification for Water Flushable Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube; 2024.

Q. ASTM B828 - Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings; 2023.

R. ASTM D2846/D2846M - Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems; 2024.

S. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers; 1992 (Reapproved 2008).

T. IAPMO (UPC) - Uniform Plumbing Code; 2012.

U. IAPMO/ANSI/CAN Z1117 - Standard for Press Connections; 2022.

V. ICC (IPC) - International Plumbing Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

W. ICC-ES AC01 - Acceptance Criteria for Expansion Anchors in Masonry Elements; 2018, with Editorial Revision (2020).

X. ICC-ES AC106 - Acceptance Criteria for Predrilled Fasteners (Screw Anchors) in Masonry; 2018, with Editorial Revision (2020).

Y. ICC-ES AC193 - Acceptance Criteria for Mechanical Anchors in Concrete Elements; 2017, with Editorial Revision (2020).

Z. ICC-ES AC308 - Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete Elements; 2023.

AA. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2018, with Amendment (2019).

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.

C. Project Record Documents: Record actual locations of valves.

D. Maintenance Materials: Furnish the following for State of Delaware OMB - Division of Facilities Management's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements for additional provisions.
   2. Valve Repacking Kits: One for each type and size of valve.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with applicable codes.

B. Welding Materials and Procedures: Comply with ASME BPVC-IX and applicable state labor regulations.

C. Welder Qualifications: Certified in accordance with ASME BPVC-IX.

D. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.

1.06 REGULATORY REQUIREMENTS

A. Perform Work in accordance with State of Delaware plumbing code.

B. Conform to applicable code for installation of backflow prevention devices.

C. Provide certificate of compliance from authority having jurisdiction indicating approval of installation of backflow prevention devices.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

B. Provide temporary protective coating on cast iron and steel valves.

C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

1.08 FIELD CONDITIONS

A. Do not install underground piping when bedding is wet or frozen.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Potable Water Supply Systems: Provide piping, pipe fittings, and solder and flux (if used), that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

B. All cast iron soil pipe and fittings shall be mrked with the collective trademark of the Cast Iron Soil Pipe Institute (CISPI) and be listed by NSF International.

2.02 SANITARY WASTE PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. Cast Iron Pipe: CISPI 301, hubless.
   1. Fittings: Cast iron.
   2. Joints: CISPI 310, neoprene gasket and stainless steel clamp and shield assemblies.

B. PVC Pipe: ASTM D2665, ASTM D3034, or ASTM F679.
   1. Fittings: PVC.
   2. Joints: Push-on, using ASTM F477 elastomeric gaskets.

2.03 SANITARY WASTE PIPING, ABOVE GRADE

A. Cast Iron Pipe: CISPI 301, hubless, service weight.
   1. Fittings: Cast iron.
   2. Joints: CISPI 310, neoprene gaskets and stainless steel clamp-and-shield assemblies.

B. CPVC Pipe: ASTM D2846/D2846M, ASTM F441/F441M, or ASTM F442/F442M.
   1. Fittings: CPVC; ASTM D2846/D2846M, ASTM F437, ASTM F438, or ASTM F439.
   2. Joints: ASTM D2846/D2846M, solvent weld with ASTM F493 solvent cement.

2.04 DOMESTIC WATER PIPING, ABOVE GRADE

A. Copper Tube(Domestic Water 2" and below): ASTM B88 (ASTM B88M), Type K (A), Drawn (H).
   1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
   2. Joints: ASTM B32, alloy Sn95 solder.
   3. Mechanical Press Sealed Fittings: ASME B16.51 or IAPMO/ANSI/CAN Z1117, ICC (IPC), and IAPMO (UPC) approved, NSF 61 and NSF 372 certified, with EPDM seals.

B. Steel Pipe (Domestic Water above 2"): ASTM A53/A53M Schedule 40, galvanized, using one of the following joint types:
   1. Threaded Joints: ASME B16.4 cast iron fittings

2.05 NATURAL GAS PIPING, ABOVE GRADE

A. Indoor Applications: Steel Pipe: ASTM A53/A53M Schedule 40 black.
   1. Fittings: ASME B16.3, malleable iron, or ASTM A234/A234M, wrought steel welding type.
   2. Joints: Threaded or welded to ASME B31.1.
   3. Paint piping safety yellow.

2.06 PIPE FLANGES, UNIONS, AND COUPLINGS

A. Unions for Pipe Sizes 3 inch and Under:
   1. Ferrous Pipe: Class 150 malleable iron threaded unions.
   2. Copper Tube and Pipe: Class 150 bronze unions with soldered joints.

B. Flanges for Pipe Sizes Over 1 inch:
   1. Ferrous Pipe: Class 150 malleable iron threaded or forged steel slip-on flanges; preformed neoprene gaskets.
   2. Copper Tube and Pipe: Class 150 slip-on bronze flanges; preformed neoprene gaskets.

2.07 PIPE HANGERS AND SUPPORTS

A. See Section 22 05 29 for additional requirements.

B. Provide hangers and supports that comply with MSS SP-58.
   1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
   2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
   3. Trapeze Hangers: Welded steel channel frames attached to structure.
   4. Vertical Pipe Support: Steel riser clamp.

C. Hanger Fasteners: Attach hangers to structure using appropriate fasteners, as follows:
   1. Concrete Wedge Expansion Anchors: Comply with ICC-ES AC193.
   2. Masonry Wedge Expansion Anchors: Comply with ICC-ES AC01.
   3. Concrete Screw Type Anchors: Comply with ICC-ES AC193.
   4. Masonry Screw Type Anchors: Comply with ICC-ES AC106.
   5. Concrete Adhesive Type Anchors: Comply with ICC-ES AC308.

2.08 PRESSURE-TEMPERATURE VALVES

A. ANSI Z21.22, AGA certified, bronze body, teflon seat, stainless steel stem and springs, automatic, direct pressure actuated, temperature relief maximum 210 degrees F, capacity ASME BPVC-IV certified and labelled.

2.09 STRAINERS

A. Size 1/2 inch to 3 inch:
   1. Class 150, threaded forged bronze Y-pattern body, stainless steel perforated mesh screen with cap, and rated for 150 psi, 250 deg F WOG service.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that excavations are to required grade, dry, and not over-excavated.

3.02 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt, on inside and outside, before assembly.

C. Prepare piping connections to equipment with flanges or unions.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Vent piping within a plenum rated ceiling must meet the code required smoke and flame spread ratings. If the material specified to be used does not meet the 25/50 smoke / flame spread rating it will be the installing contractors responsiblity to insulate the portion of this piping within the plenum.

C. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

D. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.

E. Install piping to maintain headroom, conserve space, and not interfere with use of space.

F. Group piping whenever practical at common elevations.

G. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.

H. Provide access where valves and fittings are not exposed.

I. Copper Pipe and Tube: Make soldered joints in accordance with ASTM B828, using specified solder, and flux meeting ASTM B813; in potable water systems use flux also complying with NSF 61 and NSF 372.

J. Sleeve pipes passing through partitions, walls, and floors.

K. Inserts:
1. Provide inserts for placement in concrete formwork.
2. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
3. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches.
4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
5. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut above slab.

L. Pipe Hangers and Supports:
1. Install in accordance with ASME B31.9.
2. Support horizontal piping as indicated.
3. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
4. Place hangers within 12 inches of each horizontal elbow.
5. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
6. Provide copper plated hangers and supports for copper piping.

3.04 APPLICATION

A. Install ball valves in domestic water systems 4" and smaller to shut off and isolate equipment, part of systems, or vertical risers.

B. Install ball valves for throttling, bypass, or manual flow control services.

C. Install ball valves for shut-off and to isolate equipment, part of systems, or vertical risers in gas piping.

3.05 FIELD TESTS AND INSPECTIONS

A. Verify and inspect systems according to requirements by the Authority Having Jurisdiction. In the absence of specific test and inspection procedures proceed as indicated below.

B. Domestic Water Systems:
1. Perform hydrostatic testing for leakage prior to system disinfection.
2. Test Preparation: Close each fixture valve or disconnect and cap each connected fixture.
3. General:
a. Fill the system with water and raise static head to 10 psi above service pressure. Minimum static head of 50 to 150 psi. As an exception, certain codes allow a maximum static pressure of 80 psi.

C. Gas Distribution Systems:
1. Test Preparation: Close each appliance valve or disconnect and cap each connected appliance.
2. General Systems:
a. Inject a minimum of 10 psi of compressed air into the piping system for a duration of 15 minutes and verify with a gauge that no perceptible pressure drop is measured.
b. Ensure test pressure gauge has a range of twice the specific pressure rate selected with an accuracy of 1/10 of 1 pound.

D. Test Results: Document and certify successful results, otherwise repair, document, and retest.

3.06 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

A. Prior to starting work, verify system is complete, flushed, and clean.

B. Ensure acidity (pH) of water to be treated is between 7.4 and 7.6 by adding alkali (caustic soda or soda ash) or acid (hydrochloric).

C. Inject disinfectant, free chlorine in liquid, powder, tablet, or gas form throughout system to obtain 50 to 80 mg/L residual.

D. Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets.

E. Maintain disinfectant in system for 24 hours.

F. If final disinfectant residual tests less than 25 mg/L, repeat treatment.

G. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.

H. Take samples no sooner than 24 hours after flushing, from 10 percent of outlets and from water entry, and analyze in accordance with AWWA C651.

3.07 SCHEDULES

A. Pipe Hanger Spacing:
   1. Metal Piping:
      a. Pipe Size: 1/2 inch to 1-1/4 inch:
         1) Maximum Hanger Spacing: 6.5 ft.
         2) Hanger Rod Diameter: 3/8 inches.
      b. Pipe Size: 1-1/2 inch to 2 inch:
         1) Maximum Hanger Spacing: 10 ft.
         2) Hanger Rod Diameter: 3/8 inch.
      c. Pipe Size: 2-1/2 inch to 3 inch:
         1) Maximum Hanger Spacing: 10 ft.
         2) Hanger Rod Diameter: 1/2 inch.

END OF SECTION

SECTION 22 40 00
PLUMBING FIXTURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flush valve water closets.

B. Lavatories.

C. Showers.

1.02 RELATED REQUIREMENTS

A. Section 22 10 05 - Plumbing Piping.

B. Section 22 10 06 - Plumbing Piping Specialties.

1.03 REFERENCE STANDARDS

A. ASME A112.19.2 - Ceramic Plumbing Fixtures; 2013.

B. ASSE 1070 - Performance Requirements for Water Temperature Limiting Devices; 2020.

C. NSF 61 - Drinking Water System Components - Health Effects; 2025, with Addendum

D. NSF 372 - Drinking Water System Components - Lead Content; 2024.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.

C. Maintenance Data: Include fixture trim exploded view and replacement parts lists.

D. Warranty: Submit manufacturer warranty and ensure forms have been completed in State of Delaware OMB - Division of Facilities Management's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Accept fixtures on site in factory packaging. Inspect for damage.

B. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

1.07 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Provide five year manufacturer warranty for electric water cooler.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Potable Water Systems: Provide plumbing fittings and faucets that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

2.02 FLUSH VALVE WATER CLOSETS

A. Water Closets:
   1. Vitreous china, ASME A112.19.2, floor mounted, siphon jet flush action, china bolt caps.
   2. Flush Volume: 1.6 gallon, maximum.
   3. Flush Valve: Exposed (top spud).
   4. Flush Operation: Sensor operated.
   5. Handle Height: 44 inches or less.

6. Manufacturers:
    a. Basis of Design; Zurn Industries, LLC www.zurn.com; See drawing schedule
    b. American Specialties Inc: www.americanspecialties.com.
    c. Kohler Company www.kohler.com/#sle.
    d. Toto: www.totousa.com
    e. Substitutions: See Section 01 60 00 - Product Requirements.

B. Toilet Seats:
1. Manufacturers:
    a. Zurn Industries, LLC www.zurn.com/#sle
    b. Kohler Company www.kohler.com/#sle.
    c. American Specialties Inc: www.americanspecialties.com.
    d. Substitutions: See Section 01 60 00 - Product Requirements.
2. Plastic: Black finish, open front, extended back, self-sustaining hinge, brass bolts, with cover.

2.03 TANK TYPE WATER CLOSETS

A. Manufacturers:
1. Basis of Design;Toto: www.totousa.com; See drawing schedule
2. Kohler Company www.kohler.com/#sle.
3. American Specialties Inc: www.americanspecialties.com.
4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Wall-Hung Bowl:
1. ASME A112.19.2; vitreous china, reverse trap, whirlpool action close-coupled closet combination with regular rim, insulated vitreous china closet tank with fittings and lever flushing valve, chrome plated bolt caps.
2. Water Consumption: 1.6 gal per flush, maximum.

2.04 WALL HUNG URINALS

A. Manufacturers:
1. Basis of Design; Kohler Company: www.kohler.com/#sle.; See drawing schedule
2. American Specialties Inc: www.americanspecialties.com.
3. Zurn Industries, LLC www.zurn.com
4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Vitreous china, ASME A112.19.2, wall hung with side shields and concealed carrier.
1. Consumption Volume: 1.0 gal per flush, maximum.
2. Flush Valve: Exposed (top spud).
3. Flush Operation: Sensor operated.
4. Trapway Outlet: Integral.

C. Flush Valves:

2.05 LAVATORIES

A. Manufacturers:
1. Basis of Design; Kohler Company www.kohler.com; See drawing schedule
2. American Specialties Inc: www.americanspecialties.com.
3. Zurn Industries, LLC www.zurn.com/#sle.
4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Vitreous China Wall Hung Basin: ASME A112.19.2; vitreous china wall hung lavatory, rectangular basin with splash lip, front overflow, and soap depression.

C. Supply Faucet Manufacturers:
1. Basis of Design; Kohler Company www.kohler.com; See drawing schedule
2. American Specialties Inc: www.americanspecialties.com.
3. Moen: www.moen.com

4. Substitutions: See Section01 60 00-Product Requirements.

D. Provide water tempering device to comply with ASSE 1070.

E. Accessories:

2.06 SHOWERS

A. Manufacturers:
1. Basis of Design; Zurn Industries, LLC www.zurn.com; See drawing schedule
2. American Standard, Inc: www.americanstandard-us.com/#sle.
3. Aqua Glass Corporation: www.aquaglass.com/#sle.
4. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.

B. Verify that electric power is available and of the correct characteristics.

C. Confirm that millwork is constructed with adequate provision for the installation of counter top lavatories and sinks.

3.02 PREPARATION

A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

3.03 INSTALLATION

A. Install each fixture with trap, easily removable for servicing and cleaning.

B. Provide chrome-plated rigid or flexible supplies to fixtures with loose key stops, reducers, and escutcheons.

C. Install components level and plumb.

D. Install and secure fixtures in place with wall supports and bolts.

3.04 ADJUSTING

A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

3.05 CLEANING

A. Clean plumbing fixtures and equipment.

3.06 PROTECTION

A. Protect installed products from damage due to subsequent construction operations.

B. Repair or replace damaged products before Date of Substantial Completion.

3.07 SCHEDULES

A. Fixture Heights: Install fixtures to heights above finished floor as indicated.
1. Water Closet:
a. Standard: 15 inches to top of bowl rim.
b. Accessible: 18 inches to top of seat.
2. Water Closet Flush Valves:
a. Standard: 11 inches min. above bowl rim.
3. Lavatory:
a. Accessible: 34 inches to top of basin rim.

END OF SECTION

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SECTION 23 05 93
TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Testing, adjustment, and balancing of air systems.

B. Measurement of final operating condition of HVAC systems.

C. Commissioning activities.

1.02 RELATED REQUIREMENTS

A. Section 01 40 00 - Quality Requirements: Employment of testing agency and payment for services.

B. Section 01 91 13 - General Commissioning Requirements: Commissioning requirements that apply to all types of work.

1.03 REFERENCE STANDARDS

A. ASHRAE Std 111 - Measurement, Testing, Adjusting, and Balancing of Building HVAC Systems; 2008.

B. NEBB (TAB) - Procedural Standards for Testing Adjusting and Balancing of Environmental Systems; 2015, Eighth Edition.

C. SMACNA (TAB) - HVAC Systems Testing, Adjusting and Balancing; 2002.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. TAB Plan: Submit a written plan indicating the testing, adjusting, and balancing standard to be followed and the specific approach for each system and component.
   1. Submit to DEDC, LLC.
   2. Include at least the following in the plan:
      a. List of all air flow, water flow, sound level, system capacity and efficiency measurements to be performed and a description of specific test procedures, parameters, formulas to be used.
      b. Copy of field checkout sheets and logs to be used, listing each piece of equipment to be tested, adjusted and balanced with the data cells to be gathered for each.
      c. Discussion of what notations and markings will be made on the duct and piping drawings during the process.
      d. Final test report forms to be used.
      e. Detailed step-by-step procedures for TAB work for each system and issue, including:
         1) Terminal flow calibration (for each terminal type).
         2) Diffuser proportioning.
         3) Branch/submain proportioning.
         4) Total flow calculations.
         5) Rechecking.
         6) Diversity issues.
      f. Expected problems and solutions, etc.
      g. Details of how TOTAL flow will be determined; for example:
         1) Air: Sum of terminal flows via control system calibrated readings or via hood readings of all terminals, supply (SA) and return air (RA) pitot traverse, SA or RA flow stations.
      h. Confirmation of understanding of the outside air ventilation criteria under all conditions.
      i. Method of verifying and setting minimum outside air flow rate will be verified and set and for what level (total building, zone, etc.).
      j. Procedures for formal deficiency reports, including scope, frequency and distribution.

C. Final Report: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.
   1. Revise TAB plan to reflect actual procedures and submit as part of final report.
   2. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for DEDC, LLC and for inclusion in operating and maintenance manuals.
   3. Include actual instrument list, with manufacturer name, serial number, and date of calibration.
   4. Form of Test Reports: Where the TAB standard being followed recommends a report format use that; otherwise, follow ASHRAE Std 111.
   5. Units of Measure: Report data in both I-P (inch-pound) and SI (metric) units.
   6. Include the following on the title page of each report:
      a. Name of Testing, Adjusting, and Balancing Agency.
      b. Address of Testing, Adjusting, and Balancing Agency.
      c. Telephone number of Testing, Adjusting, and Balancing Agency.
      d. Project name.
      e. Project location.
      f. Project Engineer.
      g. Project Contractor.
      h. Report date.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. TAB contractor shall review all of the drawings with special attention to the controls drawings as there is additional instruction on the drawings and sequence of operation as to how balancing shall be performed and what information the controls contractor is required to obtain.

B. TAB contractor shall perform ductwork leak tests prior to installation of ceiling. TAB contractor shall schedule this work thru the mechanical contractor.

C. Perform total system balance in accordance with one of the following:
   1. SMACNA (TAB).

D. Begin work after completion of systems to be tested, adjusted, or balanced and complete work prior to Substantial Completion of the project.

E. Where HVAC systems and/or components interface with life safety systems, including fire and smoke detection, alarm, and control, coordinate scheduling and testing and inspection procedures with the authorities having jurisdiction.

F. TAB Agency Qualifications:
   1. Company specializing in the testing, adjusting, and balancing of systems specified in this section.
   2. Certified by one of the following:
      a. TABB, The Testing, Adjusting, and Balancing Bureau of National Energy Management Institute: www.tabbcertified.org/#sle.

G. TAB Supervisor and Technician Qualifications: Certified by same organization as TAB agency.

3.02 EXAMINATION

A. Verify that systems are complete and operable before commencing work. Ensure the following conditions:
   1. Systems are started and operating in a safe and normal condition.
   2. Temperature control systems are installed complete and operable.
   3. Proper thermal overload protection is in place for electrical equipment.
   4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
   5. Duct systems are clean of debris.

6. Fans are rotating correctly.
7. Fire and volume dampers are in place and open.
8. Air coil fins are cleaned and combed.
9. Access doors are closed and duct end caps are in place.
10. Air outlets are installed and connected.
11. Duct system leakage is minimized.
12. Hydronic systems are flushed, filled, and vented.
13. Pumps are rotating correctly.
14. Proper strainer baskets are clean and in place.
15. Service and balance valves are open.

B. Submit field reports. Report defects and deficiencies that will or could prevent proper system balance.

C. Beginning of work means acceptance of existing conditions.

3.03 PREPARATION

A. Hold a pre-balancing meeting at least one week prior to starting TAB work.
1. Require attendance by all installers whose work will be tested, adjusted, or balanced.

B. Provide instruments required for testing, adjusting, and balancing operations. Make instruments available to DEDC, LLC to facilitate spot checks during testing.

3.04 ADJUSTMENT TOLERANCES

A. Air Outlets and Inlets: Adjust total to within plus 10 percent and minus 5 percent of design to space. Adjust outlets and inlets in space to within plus or minus 10 percent of design.

3.05 RECORDING AND ADJUSTING

A. Ensure recorded data represents actual measured or observed conditions.

B. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.

C. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.

D. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

3.06 AIR SYSTEM PROCEDURE

A. Adjust air handling and distribution systems to provide required or design supply, return, and exhaust air quantities at site altitude.

B. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of duct.

C. Measure air quantities at air inlets and outlets.

D. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.

E. Use volume control devices to regulate air quantities only to extend that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers and splitters.

F. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.

G. For all belt driven fans provide adjustable sheave during balancing process, and then permanent sheave once balancing is complete.

3.07 COMMISSIONING

A. See Sections 01 91 13 - General Commissioning Requirements and 23 08 00 for additional requirements.

B. Perform prerequisites prior to starting commissioning activities.

C. Fill out Prefunctional Checklists for:
   1. Air side systems.
   2. Water side systems.

D. Furnish to the Commissioning Authority, upon request, any data gathered but not shown in the final TAB report.

E. Re-check a random sample equivalent to 10 percent of the final TAB report data as directed by Commissioning Authority.
   1. Original TAB agency shall execute the re-checks, witnessed by the Commissioning Authority.
   2. Use the same test instruments as used in the original TAB work.
   3. Failure of more than 10 percent of the re-checked items of a given system shall result in the rejection of the system TAB report; rebalance the system, provide a new system TAB report, and repeat random re-checks.
   4. For purposes of re-check, failure is defined as follows:
      a. Air Flow of Supply and Return: Deviation of more than 10 percent of instrument reading.
      b. Minimum Outside Air Flow: Deviation of more than 20 percent of instrument reading; for inlet vane or VFD OSA compensation system using linear proportional control, deviation of more than 30 percent at intermediate supply flow.
      c. Temperatures: Deviation of more than one degree F.
      d. Air and Water Pressures: Deviation of more than 10 percent of full scale of test instrument reading.
      e. Sound Pressures: Deviation of more than 3 decibels, with consideration for variations in background noise.
   5. For purposes of re-check, a whole system is defined as one in which inaccuracies will have little or no impact on connected systems; for example, the air distribution system served by one air handler or the hydronic chilled water supply system served by a chiller or the condenser water system.

F. In the presence of the Commissioning Authority, verify that:
   1. Final settings of all valves, splitters, dampers and other adjustment devices have been permanently marked.
   2. The air system is being controlled to the lowest possible static pressure while still meeting design loads, less diversity; this shall include a review of TAB methods, established control setpoints, and physical verification of at least one leg from fan to diffuser having all balancing dampers wide open and that during full cooling of all terminal units taking off downstream of the static pressure sensor, the terminal unit on the critical leg has its damper 90 percent or more open.

3.08 SCOPE

A. Test, adjust, and balance the following:
   1. Air Terminal Units.
   2. Air Inlets and Outlets.

3.09 MINIMUM DATA TO BE REPORTED

A. Duct Traverses:
   1. System zone/branch.
   2. Duct size.
   3. Area.
   4. Design velocity.
   5. Design air flow.
   6. Test velocity.
   7. Test air flow.

8. Duct static pressure.
9. Air temperature.
10. Air correction factor.

B. Terminal Unit Data:
1. Manufacturer.
2. Type, constant, variable, single, dual duct.
3. Identification/number.
4. Location.
5. Model number.
6. Size.
7. Minimum static pressure.
8. Minimum design air flow.
9. Maximum design air flow.
10. Maximum actual air flow.
11. Inlet static pressure.

END OF SECTION

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SECTION 23 07 13
DUCT INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Glass Fiber, Flexible.

B. Glass Fiber, Rigid

C. Polyisocyanurate, Rigid

D. Jackets.

E. Duct insulation.

F. Jacketing and accessories.

1.02 RELATED REQUIREMENTS

A. Section 23 3100 - HVAC Ducts and Casings

1.03 REFERENCE STANDARDS

A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2021.

B. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2024.

C. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2014.

D. ASTM C1071 - Standard Specification for Fibrous Glass Duct Lining Insulation (Thermal and Sound Absorbing Material); 2012.

E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

F. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials; 2024a.

G. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005.

H. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section with not less than three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in original factory packaging, labelled with manufacturer's identification, including product density and thickness.

B. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

1.07 FIELD CONDITIONS

A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics, and insulation cements.

B. Maintain temperature during and after installation for minimum period of 24 hours.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84, UL 723, ASTM E84, or UL 723.

2.02 GLASS FIBER, FLEXIBLE

A. Manufacturer:
   1. Knauf Insulation: www.knaufusa.com.
   2. Johns Manville: www.jm.com.
   3. Owens Corning Corporation: www.ocbuildingspec.com/#sle.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Insulation: ASTM C553; flexible, noncombustible blanket.
   1. K value: 0.36 at 75 degrees F, when tested in accordance with ASTM C518.
   2. Minimum Density of 1.0 PCF.

C. Vapor Barrier Jacket:
   1. 0.0032 inch vinyl.
   2. Moisture Vapor Permeability: 0.02 perm inch, when tested in accordance with ASTM E96/E96M.
   3. Secure with pressure-sensitive tape.

2.03 POLYISOCYANURATE, RIGID

A. Insulation consists of a pre-manufactured panel system consisting of four (4) piece interlocking panels.

B. The interlocking panels shall be constructed of Dow Thermax polyisocyanurate insulation, ASTM D-1622, normal 2 pcf.
   1. Water vapor transmission as permeance less than 0.03, per ASTM E-96;
   2. Water absorption less than 0.3% (24 Hours), per ASTM C-209.
   3. Flexural strenght more than 40 psi, per ASTM C-203.

C. Operating temperature range of -100 deg. F to +250 deg. F.

D. Insulation shall be clad with 0.032" thick embossed aluminum and sealed with vapor barrier compound. All joints shall interlock to ensure a thermal seal with no pass through seams.

E. Panels shall be secured with #10 self-tapping stainless screws with weather seal washers.

F. Manufacturers:
   1. P.T.M. Manufacturing, LLC Model Techna-Duc.
   2. Fab-Rite Exterior Duct Cladding System
   3. Polyguard Products, Inc. Model Alumaguard 60.
   4. Substitutions: See Section 01 6000 - Product Requirements.

G. Insulation shall be provided with a 20-year warranty.

2.04 GLASS FIBER, RIGID

A. Manufacturer:
   1. Knauf Insulation: www.knaufusa.com.
   2. Johns Manville: www.jm.com.
   3. Owens Corning Corp: www.owenscorning.com.
   4. CertainTeed Corporation: www.certainteed.com.
   5. Substitutions: See Section 01 60 00 - Product Requirements.

B. Insulation: ASTM C612; rigid, noncombustible blanket.
   1. K Value: 0.24 at 75 degrees F, when tested in accordance with ASTM C518.
   2. Maximum Service Temperature: 450 degrees F.
   3. Maximum Water Vapor Absorption: 5.0 percent.
   4. Maximum Density: 8.0 pcf.

C. Vapor Barrier Jacket:
   1. 0.0032 inch vinyl.
   2. Moisture Vapor Permeability: 0.02 perm inch, when tested in accordance with ASTM E96/E96M.

2.05 JACKETING AND ACCESSORIES

PART 3 EXECUTION

3.01 EXAMINATION

A. Test ductwork for design pressure prior to applying insulation materials.

B. Verify that surfaces are clean, foreign material removed, and dry.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.
   1. For rigid polyisocyanurate, installation shall only be completed by manufacturer licensed contractors.

B. Insulated Ducts Conveying Air Below Ambient Temperature:
   1. Provide insulation with vapor barrier jackets.
   2. Finish with tape and vapor barrier jacket.
   3. Continue insulation through walls, sleeves, hangers, and other duct penetrations.
   4. Insulate entire system, including fittings, joints, flanges, fire dampers, flexible connections, and expansion joints.

C. Insulated Ducts Conveying Air Above Ambient Temperature:
   1. Provide with or without standard vapor barrier jacket.
   2. Insulate fittings and joints. Where service access is required, bevel and seal ends of insulation.

D. Ducts Exposed in Mechanical Equipment Rooms or Finished Spaces (below 10 feet above finished floor): Finish with canvas jacket sized for finish painting.

3.03 SCHEDULES

A. Exhaust Ducts Within 10 ft of Exterior Openings: 2 inches thick, flexible glass fiber or rigid board.

B. Supply Ducts within insulated building envelope (R-6 min.): 2 inches thick, flexible glass fiber

C. Supply Ducts within building but outside insulated building envelope (R-8 min.): 3 inches thick, flexible glass fiber, or 2" thick rigid board.

D. Return Ducts: 1 inch thick, flexible glass fiber or rigid board.

E. Ducts exposed in mechanical room or non public spaces: shall be provided with rigid board and jacket.

END OF SECTION

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SECTION 23 31 00
HVAC DUCTS AND CASINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal ducts.

B. Flexible ducts.

C. Air plenums and casings

1.02 RELATED REQUIREMENTS

A. Section 23 07 13 - Duct Insulation: External insulation and duct liner.

B. Section 23 05 93 - Testing, Adjusting, and Balancing for HVAC.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

B. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2024.

C. NFPA 90B - Standard for the Installation of Warm Air Heating and Air-Conditioning Systems; 2015.

D. NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations; 2014.

E. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005.

F. SMACNA (LEAK) - HVAC Air Duct Leakage Test Manual; 2012, 2nd Edition.

G. UL 181 - Standard for Factory-Made Air Ducts and Air Connectors; current edition, including all revisions.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data for duct materials.

C. Shop Drawings: Indicate duct fitting types, gauges, sizes, welds, and configuration.

D. Test Reports: Indicate pressure tests performed. Include date, section tested, test pressure, and leakage rate per appropriate seal class, following SMACNA (LEAK).

E. Project Record Documents: Record actual locations of ducts and duct fittings. Record changes in fitting location and type. Show additional fittings used.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience, and approved by manufacturer.

1.06 REGULATORY REQUIREMENTS

A. Construct ductwork to NFPA 90A, NFPA 90B, and NFPA 96 standards.

1.07 FIELD CONDITIONS

A. Do not install duct sealants when temperatures are less than those recommended by sealant manufacturers.

B. Maintain temperatures within acceptable range during and after installation of duct sealants.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Provide UL Class 1 ductwork, fittings, hangers, supports, and appurtenances in accordance with NFPA 90A and SMACNA (DCS) guidelines unless stated otherwise.

B. Provide metal duct unless otherwise indicated. Fibrous glass duct can be substituted at the Contractor's option.

C. Acoustical Treatment: Provide sound-absorbing liners and sectional silencers for metal-based ducts in compliance with Section 23 33 19.

D. Duct Shape and Material in accordance with Allowed Static Pressure Range:
   1. Rectangular: Plus or minus 1/2 in-wc of galvanized steel.

E. Duct Sealing and Leakage in accordance with Static Pressure Class:
   1. Duct Pressure Class and Material for Common Mechanical Ventilation Applications:
      a. Supply Air: 2 in-wc pressure class, galvanized steel.
      b. Return and Relief Air: 2 in-wc pressure class, galvanized steel.
      c. General Exhaust Air: 2 in-wc pressure class, galvanized steel.

F. Duct Fabrication Requirements:
   1. Duct and Fitting Fabrication and Support: SMACNA (DCS) including specifics for continuously welded round and oval duct fittings.
   2. Use reinforced and sealed sheet-metal materials at recommended gauges for indicated operating pressures or pressure class.
   3. Construct tee's, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows must be used, provide air foil turning vanes of perforated metal with glass fiber insulation.
   4. Provide turning vanes of perforated metal with glass fiber insulation when acoustical lining is indicated.
   5. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.
   6. Provide turning vanes of perforated metal with glass fiber insulation when an acoustical lining is required.
   7. Where ducts are connected to exterior wall louvers and duct outlet is smaller than louver frame, provide blank-out panels sealing louver area around duct. Use same material as duct, painted black on exterior side; seal to louver frame and duct.

G. All Ducts: Galvanized steel, or Manufactured Non-Metallic Ductwork.

2.02 MATERIALS

A. Joint Sealers and Sealants: Non-hardening, water resistant, mildew and mold resistant.

2.03 METAL DUCTS

A. Material Requirements:
   1. Galvanized Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M FS Type B, with G60/Z180 coating.

B. Rectangular Metal Duct:
   1. Rectangular Double Wall Insulated: Rectangular spiral lock seam duct with galvanized steel outer wall, perforated galvanized steel inner wall; fitting with the solid inner wall.
      a. Insulation:
         1) Thickness: 1 inch.
         2) Material: Air.

C. Round Metal Ducts:
   1. Round Connection System: Interlocking duct connection system in accordance with SMACNA (DCS).

2.04 FLEXIBLE DUCTS

A. Flexible Air Ducts:
   1. UL 181, Class 1, multiple layers of aluminum laminate supported by helically wound spring steel wire.
   2. Pressure Rating: From 10 in-wc positive to 1 in-wc negative.
   3. Maximum Velocity: 4,000 fpm.
   4. Temperature Range: Minus 20 to 210 degrees F.

2.05 AIR PLENUMS AND CASINGS

A. Fabricate in accordance with SMACNA (DCS) for indicated operating pressures indicated.

B. Minimum Fabrication Requirements:
   1. Fabricate acoustic plenum or casing with reinforcing turned inward.
   2. Provide 16 gauge, 0.059 inch sheet steel back facing and 22 gauge, 0.029 inch perforated sheet steel front facing with 3/32 inch diameter holes on 5/32 inch centers.
   3. Construct panels 3 inches thick packed with 4.5 pcf minimum glass fiber insulation media, on inverted channels of 16 gauge, 0.059 inch sheet steel.
   4. Mount floor mounted plenum or casings on 4 inch high concrete curbs. At floor, rivet panels on 8 inch centers to angles. Where floors are acoustically insulated, provide liner of galvanized 18 gauge, 0.052 inch expanded metal mesh supported at 12 inch centers, turned up 12 inches at sides with sheet metal shields.

C. Access Doors:
   1. Install hinged access doors where indicated or required for access to equipment for cleaning and inspection.
   2. Reinforce door frames with steel angles tied to horizontal and vertical plenum supporting angles.
   3. Provide clear wire glass observation ports, minimum 6 by 6 inch size.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install, support, and seal ducts in accordance with SMACNA (DCS).

B. Install products following the manufacturer's instructions.

C. During construction, provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering the ductwork system.

D. Duct sizes indicated are inside precise dimensions. For lined ducts, maintain sizes inside lining.

E. Provide openings in ductwork as indicated to accommodate thermometers and controllers. Provide pilot tube openings as indicated for testing of systems, complete with metal can with spring device or screw to insure against air leakage. For openings, insulate ductwork and install insulation material inside a metal ring.

F. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.

G. Use crimp joints with or without bead for joining round duct sizes 8 inch and smaller with a crimp in the direction of airflow.

H. Use double nuts and lock washers on threaded rod supports.

I. Connect terminal units to supply ducts directly or with one foot maximum length of flexible duct. Do not use a flexible duct to change direction.

J. At exterior wall louvers, seal duct to louver frame and install blank-out panels.

3.02 CLEANING

A. Clean thoroughly each duct system as indicated within Section 23 01 30.51.

B. Clean the duct system and force air at high velocity through the duct to remove accumulated dust. Clean half the system at a time to obtain sufficient air. Protect equipment that could be harmed by excessive dirt with temporary filters or bypass during cleaning.

3.03 SCHEDULES

A. Ductwork Pressure Class:
   1. Supply (Heating Systems): 2 inch (500 Pa
   2. Supply (System with Cooling Coils): 2 inch.
   3. Return Ductwork: 1 inch.
   4. General Exhaust: 1 inch.

END OF SECTION

SECTION 23 37 00
AIR OUTLETS AND INLETS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Diffusers:
   1. Perforated ceiling diffusers.

B. Rectangular ceiling diffusers.

C. Registers/grilles:
   1. Ceiling-mounted, egg crate exhaust and return register/grilles.
   2. Ceiling-mounted, exhaust and return register/grilles.
   3. Ceiling-mounted, supply register/grilles.

1.02 REFERENCE STANDARDS

A. ASHRAE Std 70 - Method of Testing the Performance of Air Outlets and Inlets; 2006 (R2011).

B. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.

C. Project Record Documents: Record actual locations of air outlets and inlets.

1.04 QUALITY ASSURANCE

A. Test and rate air outlet and inlet performance in accordance with ASHRAE Std 70.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Krueger-HVAC: www.krueger-hvac.com/#sle.

B. Price Industries www.price-hvac.com/#sle.

C. Titus, a brand of Air Distribution Technologies www.titus-hvac.com/#sle.

D. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 RECTANGULAR CEILING DIFFUSERS

A. Type: Square, stamped, multi-core diffuser to discharge air in 360 degree pattern with sectorizing baffles where indicated.

B. Frame: Inverted T-bar type. In plaster ceilings, provide plaster frame and ceiling frame.

C. Fabrication: Steel with baked enamel finish.

D. Accessories: Radial opposed blade damper and multi-louvered equalizing grid with damper adjustable from diffuser face.

2.03 PERFORATED FACE CEILING DIFFUSERS

A. Type: Perforated face with fully adjustable pattern and removable face.

B. Frame: Surface mount type.

C. Fabrication: Steel with steel frame and baked enamel finish.

D. Color: As indicated.

2.04 CEILING SUPPLY REGISTERS/GRILLES

A. Type: Streamlined and individually adjustable curved blades to discharge air along face of grille, one-way deflection.

2.05 CEILING EXHAUST AND RETURN REGISTERS/GRILLES

A. Type: Streamlined blades, 3/4 inch minimum depth, 3/4 inch maximum spacing, with blades set at 45 degrees, vertical face.

B. Frame: 1-1/4 inch margin with countersunk screw mounting.

C. Fabrication: Steel with 20 gauge, 0.0359 inch minimum frames and 22 gauge, 0.0299 inch minimum blades, steel and aluminum with 20 gauge, 0.0359 inch minimum frame, or aluminum extrusions, with factory baked enamel finish.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Check location of outlets and inlets and make necessary adjustments in position to comply with architectural features, symmetry, and lighting arrangement.

C. Install diffusers to ductwork with air tight connection.

D. Provide balancing dampers on duct take-off to diffusers, and grilles and registers, despite whether dampers are specified as part of the diffuser, or grille and register assembly.

E. Paint ductwork visible behind air outlets and inlets matte black.

3.02 PROTECTION

A. Protect installed products until completion of project.

B. Replace, repair, or touch-up damaged products before Substantial Completion.

END OF SECTION

SECTION 26 05 05
SELECTIVE DEMOLITION FOR ELECTRICAL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical demolition.

1.02 RELATED REQUIREMENTS

A. Section 01 70 00 - Execution and Closeout Requirements: Additional requirements for alterations work.

B. Section 01 74 19 - Construction Waste Management and Disposal: Handling and disposal of construction waste, including requirements for Universal Waste Diversion.

C. Section 07 84 00 - Firestopping.

D. Section 26 05 53 - Identification for Electrical Systems.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Materials and equipment for patching and extending work: As specified in individual sections.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify field measurements and circuiting arrangements are as indicated.

B. Verify that abandoned wiring and equipment serve only abandoned facilities.

C. Demolition drawings are based on casual field observation and existing record documents. Contractor shall be responsible for field-verification of existing conditions prior to beginning work.

D. Report discrepancies to State of Delaware OMB - Division of Facilities Management before disturbing existing installation.

E. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION

A. Prior to performing work on electrical circuits, Contractor shall positively identify power sources, turn circuit breakers or switches to "off" and lock out and/or tag out circuits as required.

B. Contractor shall coordinate all electrical demolition work with State of Delaware OMB - Division of Facilities Management as well as all other trades involved in Project.

C. Contractor shall keep work area clean and orderly.

D. All electrical demolition work shall be performed in a safe and orderly manner and in accordance with all State of Delaware OMB - Division of Facilities Management regulations, local codes, OSHA, International Building Code and National Electrical Code; all being most recent editions adopted by Authoriti(es) Having Jurisdiction, including all applicable amendments and supplements.

E. All electrical demolition work shall be scheduled and coordinated with State of Delaware OMB - Division of Facilities Management such that disruption of areas involved is kept to minimum.

F. All power shutdowns affecting areas not within scope of Project shall be coordinated with State of Delaware OMB - Division of Facilities Management. Accidental interruptions to services shall be repaired immediately by Contractor at no additional cost to State of Delaware OMB - Division of Facilities Management.

G. Disconnect electrical systems in walls, floors, and ceilings to be removed.

H. Coordinate utility service outages with utility company.

I. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.

J. Existing Fire Alarm System: Maintain existing system in service until new system is accepted. Disable system only to make switchovers and connections. Minimize outage duration.
   1. Notify State of Delaware OMB - Division of Facilities Management before partially or completely disabling system.
   2. Notify local fire service.
   3. Make notifications at least 24 hours in advance.
   4. Make temporary connections to maintain service in areas adjacent to work area.

3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

A. Perform work for removal and disposal of equipment and materials containing toxic substances regulated under the Federal Toxic Substances Control Act (TSCA) in accordance with applicable federal, state, and local regulations. Applicable equipment and materials include, but are not limited to:
   1. PCB-containing electrical equipment, including transformers, capacitors, and switches.
   2. PCB- and DEHP-containing lighting ballasts.
   3. Mercury-containing lamps and tubes, including fluorescent lamps, high intensity discharge (HID), arc lamps, ultra-violet, high pressure sodium, mercury vapor, ignitron tubes, neon, and incandescent.

B. Unless otherwise noted, all electrical items indicated for demolition shall be removed including all associated wiring, controls and accessible conduit and boxes traced back to source. Where removal causes power interruption of electrical items to remain, rewire existing circuits as required to maintain continuity.

C. Conduit and boxes becoming inactive that are inaccessible shall be abandoned in place with open ends filled with firestopping expandable foam in accordance with Section 07 84 00.

D. Openings in conduit and boxes remaining active shall be capped with appropriate fittings.

E. Unless otherwise noted, circuit breakers becoming inactive shall have operating mechanisms placed in "off" (de-energized) position and be labeled as "SPARE" in accordance with Section 26 05 53.

F. Contractor shall update panel schedules for all panelboards affected by Project in accordance with Section 26 05 53.

G. Remove, relocate, and extend existing installations to accommodate new construction.

H. All circuits abandoned or not used shall be located, identified, disconnected and removed back to source.

I. Remove abandoned wiring to source of supply.

J. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, fill open ends with firestopping expandable foam in accordance with Section 07 84 00 and patch surfaces.

K. Remove existing abandoned wiring and conduit designated as obsolete by State of Delaware OMB - Division of Facilities Management authorities.

L. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets that are not removed.

M. Disconnect and remove abandoned panelboards and distribution equipment.

N. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.

O. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories.

P. Remove abandoned support channel associated with demolished electrical equipment.

Q. Existing branch circuits or circuits of other systems passing through Project area that interferes with new construction shall be relocated as required. All relocation of existing circuits shall be coordinated with State of Delaware OMB - Division of Facilities Management and with all other affected trades before proceeding with new construction.

R. Contractor shall be responsible for temporary removal and re-installation of existing ceiling tiles and/or other ceiling access equipment as required to accommodate electrical demolition and/or extension work. Contractor shall be responsible for repair and/or replacement of all ceiling tiles and/or access equipment damaged as result of work. Contractor shall inspect existing conditions prior to commencement of work and provide written report of existing damage to State of Delaware OMB - Division of Facilities Management.

S. Contractor shall be responsible for repair, patching and painting of all holes, dents, cracks, penetrations, etc. or other damage left in surfaces and/or structures after electrical demolition and/or extension work. Surfaces and/or structures to be restored shall include ceilings, walls, floors, columns, roofs, etc. Patching and painting shall restore surfaces and/or structures to original designs and/or finishes, including all fire-resistant and watertight ratings. All openings to building exteriors and through roofs shall be sealed watertight.

T. Repair adjacent construction and finishes damaged during demolition and extension work.

U. Damage caused by Contractor to areas outside area of demolition shall be repaired to original condition by Contractor at no additional cost to State of Delaware OMB - Division of Facilities Management.

V. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel as appropriate.

W. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified.

X. All demolished materials not to be turned over to State of Delaware OMB - Division of Facilities Management shall be removed from site daily. Salvaged materials shall be stored for re-use.

3.04 CLEANING AND REPAIR

A. See Section 01 74 19 - Construction Waste Management and Disposal for additional requirements.

B. Clean and repair existing materials and equipment that remain or that are to be reused.

END OF SECTION

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SECTION 26 05 19
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wire and cable for 600 volts and less.

B. Single conductor building wire.

C. Metal-clad cable.

D. Wiring connectors.

E. Electrical tape.

F. Heat shrink tubing.

G. Oxide inhibiting compound.

H. Wire pulling lubricant.

I. Cable ties.

J. Firestop sleeves.

1.02 RELATED REQUIREMENTS

A. Section 07 84 00 - Firestopping.

B. Section 26 05 05 - Selective Demolition for Electrical: Disconnection, removal, and/or extension of existing electrical conductors and cables.

C. Section 26 05 26 - Grounding and Bonding for Electrical Systems: Additional requirements for grounding conductors and grounding connectors.

D. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.

E. Section 28 46 00 - Fire Detection and Alarm: Fire alarm system conductors and cables.

1.03 REFERENCE STANDARDS

A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire; 2013 (Reapproved 2018).

B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft; 2023.

C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes; 2010, with Editorial Revision (2020).

D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation; 2004 (Reapproved 2020).

E. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape; 2017.

F. ASTM D4388 - Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes; 2020.

G. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

H. NECA 120 - Standard for Installing Armored Cable (AC) and Type Metal-Clad (MC) Cable; 2018.

I. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy; 2021.

J. NETA ATS - Standard for Acceptance Testing Specifications for Electrical Power Equipment And Systems; 2025.

K. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

L. UL 44 - Thermoset-Insulated Wires and Cables; Current Edition, Including All Revisions.

M. UL 83 - Thermoplastic-Insulated Wires and Cables; Current Edition, Including All Revisions.

N. UL 267 - Outline of Investigation for Wire-Pulling Compounds; Current Edition, Including All Revisions.

O. UL 486A-486B - Wire Connectors; Current Edition, Including All Revisions.

P. UL 486C - Splicing Wire Connectors; Current Edition, Including All Revisions.

Q. UL 486D - Sealed Wire Connector Systems; Current Edition, Including All Revisions.

R. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape; Current Edition, Including All Revisions.

S. UL 1569 - Metal-Clad Cables; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate sizes of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
   2. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.
   3. Notify DEDC, LLC of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for conductors and cables, including detailed information on materials, construction, ratings, listings, and available sizes, configurations, and stranding.

C. Project Record Documents: Record actual installed circuiting arrangements. Record actual routing for underground circuits.

D. Maintenance Materials: Furnish the following for State of Delaware OMB - Division of Facilities Management's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

D. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store conductors and cables in accordance with manufacturer's instructions.

1.08 FIELD CONDITIONS

A. Do not install or otherwise handle thermoplastic-insulated conductors at temperatures lower than 14 degrees F, unless otherwise permitted by manufacturer's instructions. When installation below this temperature is unavoidable, notify DEDC, LLC and obtain direction before proceeding with work.

PART 2 PRODUCTS

2.01 CONDUCTOR AND CABLE APPLICATIONS

A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.

B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.

C. Nonmetallic-sheathed cable is not permitted.

D. Underground feeder and branch-circuit cable is not permitted.

E. Service entrance cable is not permitted.

F. Armored cable is not permitted.

G. Metal-clad cable is permitted only as follows:
   1. Where not otherwise restricted, may be used:
      a. Where concealed above accessible ceilings for final connections from junction boxes to luminaires.
         1) Maximum Length: 6 feet.
      b. Where concealed in hollow stud walls and above accessible ceilings for branch circuits up to 20 A.
   2. In addition to other applicable restrictions, may not be used:
      a. Unless approved by State of Delaware OMB - Division of Facilities Management.
      b. Where not approved for use by the authority having jurisdiction.
      c. Where exposed to view.
      d. Where exposed to damage.
      e. For damp, wet, or corrosive locations.

H. Manufactured wiring systems are not permitted.

I. Conductor & Cable Applications Summary:
   1. Concealed Dry Interior Locations: Use only building wire in raceway or metal clad cable (as permitted above).
   2. Exposed Dry Interior Locations: Use only building wire in raceway.
   3. Above Accessible Ceilings or in Hollow Stud Walls: Use only building wire in raceway or metal clad cable (as permitted above).
   4. Wet or Damp Interior Locations: Use only building wire in raceway.
   5. Exterior Locations: Use only building wire in raceway.

2.02 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

A. Provide products that comply with requirements of NFPA 70.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.

D. Comply with NEMA WC 70.

E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.

F. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.

G. Conductors for Grounding and Bonding: Also comply with Section 26 05 26.

H. Conductors and Cables Installed Exposed in Spaces Used for Environmental Air (only where specifically permitted): Plenum rated, listed and labeled as suitable for use in return air plenums.

I. Provide products with insulation and temperature ratings as required per equipment installation instructions where such ratings differ from those indicated herein.

J. Conductor Material:

1. Provide copper conductors only. Aluminum conductors are not acceptable for this project. Conductor sizes indicated are based on copper.
2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
3. Tinned Copper Conductors: Comply with ASTM B33.

K. Minimum Conductor Size:
1. Branch Circuits: 12 AWG.
a. Exceptions: Size homerun branch circuit conductors from power source to first outlet in accordance with the following maximum circuit limits, using center of load served as basis for computing circuit lengths:
1) 20 A, 120 V circuits longer than 75 feet: 10 AWG, for voltage drop.
2) 20 A, 120 V circuits longer than 150 feet: 8 AWG, for voltage drop.
3) 20A, 240V circuits longer than 150 feet: 10 AWG, for voltage drop.
2. Control Circuits: 14 AWG.

L. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

M. Conductor Color Coding:
1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
2. Color Coding Method: Integrally colored insulation.
a. Conductors size 4 AWG and larger may have black insulation color coded using vinyl color coding electrical tape.
3. Color Code:
a. 240/120 V High-Leg Delta, 3 Phase, 4 Wire System:
1) Phase A: Black.
2) Phase B (High-Leg): Orange.
3) Phase C: Blue.
4) Neutral/Grounded: White.
b. Equipment Ground, All Systems: Green.
c. Travelers for 3-Way and 4-Way Switching: Pink.
d. For control circuits, comply with manufacturer's recommended color code.

2.03 SINGLE CONDUCTOR BUILDING WIRE

A. Manufacturers:
1. Copper Building Wire:
a. Cerro Wire LLC: www.cerrowire.com/#sle.
b. Encore Wire Corporation: www.encorewire.com/#sle.
c. General Cable Technologies Corporation: www.generalcable.com/#sle.
d. Service Wire Co: www.servicewire.com/#sle.
e. Southwire Company: www.southwire.com/#sle.
f. Substitutions: See Section 01 60 00 - Product Requirements.

B. Description: Single conductor insulated wire.

C. Conductor Stranding:
1. Feeders and Branch Circuits:
a. Size 10 AWG and Smaller: Solid.
b. Size 8 AWG and Larger: Stranded.
2. Control Circuits: Stranded.

D. Insulation Voltage Rating: 600 V.

E. Insulation:
1. Copper Building Wire: Type THHN/THWN-2, except as indicated below.

a. Motor Circuits Installed Between Variable Frequency Drive (VFD) Outputs and Motors Served: Type XHHW-2.

2.04 METAL-CLAD CABLE

A. Manufacturers:
1. AFC Cable Systems Inc: www.afcweb.com/#sle.
2. Encore Wire Corporation: www.encorewire.com/#sle.
3. Service Wire Co: www.servicewire.com/#sle.
4. Southwire Company: www.southwire.com/#sle.
5. Substitutions: See Section 01 60 00 - Product Requirements.

B. Description: NFPA 70, Type MC cable listed and labeled as complying with UL 1569, and listed for use in classified firestop systems to be used.

C. Conductor Stranding:
1. Size 10 AWG and Smaller: Solid.
2. Size 8 AWG and Larger: Stranded.

D. Insulation Voltage Rating: 600 V.

E. Insulation: Type THHN/THWN-2.

F. Provide dedicated neutral conductor for each phase conductor for all single-phase 2-wire circuits requiring a neutral.

G. Grounding: Full-size integral green insulated copper equipment grounding conductor.

H. Armor: Aluminum or steel, interlocked tape.

2.05 WIRING CONNECTORS

A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.

B. Connectors for Grounding and Bonding: Comply with Section 26 05 26.

C. Wiring Connectors for Splices and Taps:
1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors or compression connectors. Tape uninsulated conductors and connector with electrical tape or insulate with heat shrink tubing to 150 percent of insulation rating of conductor.

D. Wiring Connectors for Non-Motor Terminations:
1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
2. Provide compression adapters for connecting conductors to equipment furnished with mechanical lugs when only compression connectors are specified.
3. Where over-sized conductors are larger than the equipment terminations can accommodate, provide connectors suitable for reducing to appropriate size, but not less than required for the rating of the overcurrent protective device.
4. Copper Conductors Size 8 AWG and Larger: Use mechanical connectors or compression connectors where connectors are required.
5. Stranded Conductors Size 10 AWG and Smaller: Use crimped terminals for connections to terminal screws.
6. Conductors for Control Circuits: Use crimped terminals where connectors are required.

E. Wiring Connectors for Motor Terminations: Use motor lead disconnects with slip-on insulating boot, pin and silicone gel. Boot sealant shall be used with all insulating boots.

F. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors without stripping insulation.

G. Do not use push-in wire connectors as a substitute for twist-on insulated spring connectors.

H. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F for standard applications and 302 degrees F for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.
   1. Manufacturers:
      a. 3M: www.3m.com/#sle.
      b. Ideal Industries, Inc: www.idealindustries.com/#sle.
      c. NSI Industries LLC: www.nsiindustries.com/#sle.
      d. Substitutions: See Section 01 60 00 - Product Requirements.

I. Mechanical Connectors: Provide bolted type or set-screw type.
   1. Manufacturers:
      a. Burndy LLC: www.burndy.com.
      b. nVent ILSCO: www.ilsco.com/#sle.
      c. Thomas & Betts Corporation; Blackburn Products: www.tnb.com/#sle.
      d. Polaris: www.polarisconnectors.com.
      e. Substitutions: See Section 01 60 00 - Product Requirements.

J. Compression Connectors: Provide circumferential type or hex type crimp configuration.
   1. Manufacturers:
      a. Burndy LLC: www.burndy.com.
      b. nVent ILSCO: www.ilsco.com/#sle.
      c. Thomas & Betts Corporation; Blackburn Products: www.tnb.com/#sle.
      d. Substitutions: See Section 01 60 00 - Product Requirements.

K. Crimped Terminals: Nylon-insulated, with insulation grip and terminal configuration suitable for connection to be made.
   1. Manufacturers:
      a. Burndy LLC: www.burndy.com.
      b. Ilsco: www.ilsco.com/#sle.
      c. Thomas & Betts Corporation; Sta-Kon Products: www.tnb.com/#sle.
      d. Substitutions: See Section 01 60 00 - Product Requirements.

L. Motor Lead Disconnects: Color-keyed compression-type with slip-on insulating boot, pin, silicone gel and boot sealant.
   1. Manufacturers:
      a. 3M: www.3m.com/#sle.
      b. SPS Industrial:www.spsindustrial.com/#sle.
      c. Thomas & Betts Corporation: www.tnb.com/#sle.
         1) Motor Lead Disconnects: M2D Series.
         2) Boot Sealant: MDBOOT-SEAL.
      d. Substitutions: See Section 01 60 00 - Product Requirements.

2.06 ACCESSORIES

A. Electrical Tape:
   1. Manufacturers:
      a. 3M: www.3m.com/#sle.
      b. Plymouth Rubber Europa: www.plymouthrubber.com/#sle.
      c. Hellerman Tyton: www.hellermentyton.com/#sle.
      d. Duck Brand: https://www.duckbrand.com/#sle
      e. Substitutions: See Section 01 60 00 - Product Requirements.
   2. Vinyl Color Coding Electrical Tape: Integrally colored to match color code indicated; listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; suitable for continuous temperature environment up to 221 degrees F.
   3. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight;

conformable for application down to 0 degrees F and suitable for continuous temperature environment up to 221 degrees F.

4. Rubber Splicing Electrical Tape: Ethylene Propylene Rubber (EPR) tape, complying with ASTM D4388; minimum thickness of 30 mil; suitable for continuous temperature environment up to 194 degrees F and short-term 266 degrees F overload service.
5. Electrical Filler Tape: Rubber-based insulating moldable putty, minimum thickness of 125 mil; suitable for continuous temperature environment up to 176 degrees F.
6. Moisture Sealing Electrical Tape: Insulating mastic compound laminated to flexible, all-weather vinyl backing; minimum thickness of 90 mil.

B. Heat Shrink Tubing: Heavy-wall, split-resistant, with factory-applied adhesive; rated 600 V; suitable for direct burial applications; listed as complying with UL 486D.
   1. Manufacturers:
      a. 3M: www.3m.com/#sle.
      b. Burndy LLC: www.burndy.com/#sle.
      c. Thomas & Betts Corporation: www.tnb.com/#sle.
      d. Substitutions: See Section 01 60 00 - Product Requirements.

C. Oxide Inhibiting Compound: Listed; suitable for use with the conductors or cables to be installed.
   1. Manufacturers:
      a. Burndy LLC: www.burndy.com/#sle.
      b. Ideal Industries, Inc: www.idealindustries.com/#sle.
      c. Ilsco: www.ilsco.com/#sle.
      d. Substitutions: See Section 01 60 00 - Product Requirements.

D. Wire Pulling Lubricant:
   1. Manufacturers:
      a. 3M: www.3m.com/#sle.
      b. American Polywater Corporation: www.polywater.com/#sle.
      c. Ideal Industries, Inc: www.idealindustries.com/#sle.
      d. Substitutions: See Section 01 60 00 - Product Requirements.
   2. Listed and labeled as complying with UL 267.
   3. Suitable for use with conductors/cables and associated insulation/jackets to be installed.
   4. Suitable for use at installation temperature.
   5. Products:
      a. American Polywater Corporation; Polywater J Cable Pulling Lubricant: www.polywater.com/#sle.
      b. American Polywater Corporation; Polywater LZ Cable Pulling Lubricant: www.polywater.com/#sle.
      c. Substitutions: See Section 01 60 00 - Product Requirements.

E. Cable Ties: Material and tensile strength rating suitable for application.
   1. Manufacturers:
      a. Burndy LLC: www.burndy.com/#sle.
      b. Cable Ties Unlimited: www.cabletiesunlimited.com/#sle.
      c. Cable Ties Plus: www.cabletiesplus.com/#sle.
      d. Substitutions: See Section 01 60 00 - Product Requirements.

F. Firestop Sleeves: Listed; provide as required to preserve fire resistance rating of building elements.
   1. Products:
      a. HoldRite, a brand of Reliance Worldwide Corporation; HydroFlame Pro Series/HydroFlame Custom Built: www.holdrite.com/#sle.
      b. Hilti: www.hilti.com/#sle.
      c. STI Firestop: www.stifirestop.com/#sle.

d. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that interior of building has been protected from weather.

B. Verify that work likely to damage wire and cable has been completed.

C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.

D. Verify that raceway installation is complete and supported.

E. Verify that field measurements are as indicated.

F. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.03 INSTALLATION

A. Circuiting Requirements:
   1. Unless dimensioned, circuit routing indicated is diagrammatic.
   2. When circuit destination is indicated without specific routing, determine exact routing required.
   3. Arrange circuiting to minimize splices.
   4. Include circuit lengths required to install connected devices within 10 ft of location indicated.
   5. Maintain separation of Class 1, Class 2, and Class 3 remote-control, signaling, and power-limited circuits in accordance with NFPA 70.
   6. Maintain separation of wiring for emergency systems in accordance with NFPA 70.
   7. Circuiting Adjustments: Unless otherwise indicated, when branch circuits are indicated as separate, combining them together in a single raceway is permitted, under the following conditions:
      a. Provide no more than six current-carrying conductors in a single raceway. Dedicated neutral conductors are considered current-carrying conductors.
      b. Increase size of conductors as required to account for ampacity derating.
      c. Size raceways, boxes, etc. to accommodate conductors.
   8. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among single phase branch circuits is not permitted. Provide dedicated neutral/grounded conductor for each individual branch circuit.

B. Install products in accordance with manufacturer's instructions.

C. Perform work in accordance with NECA 1 (general workmanship).

D. Install metal-clad cable (Type MC) in accordance with NECA 120.

E. Installation in Raceway:
   1. Swab/clean interiors of new and existing conduits before pulling new conductors.
   2. Remove existing conductors and cables from raceway before pulling in new (where applicable).
   3. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
   4. Use cable pullers to pull conductors through conduits.
   5. Pull all conductors and cables together into raceway at same time.
   6. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.

7. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.

F. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.

G. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.
   1. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conductors and cables to lay on ceiling tiles. Support at 6 foot maximum intervals using type MC cable supports designed and listed for the purpose.
   2. Installation in Vertical Raceways: Provide supports where vertical rise exceeds permissible limits.

H. Terminate cables using suitable fittings.
   1. Metal-Clad Cable (Type MC):
      a. Fittings used for connecting type MC cable to boxes, cabinets or other equipment shall be listed and identified for such use. Snap-in connectors or internal box clamps shall not be permitted. All connectors shall be locknut type, designed to secure type MC cable to boxes or enclosures.
      b. Cut cable armor only using specialized tools to prevent damaging conductors or insulation. Do not use hacksaw or wire cutters to cut armor.
      c. Do not use direct-bearing set-screw type fittings for cables with aluminum armor.
      d. Provide plastic anti-short bushings on ends of all type MC cable.

I. Install conductors with a minimum of 12 inches of slack at each outlet.

J. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.

K. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.

L. Make wiring connections using specified wiring connectors.
   1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
   2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
   3. Do not remove conductor strands to facilitate insertion into connector.
   4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminates. Do not use wire brush on plated connector surfaces.
   5. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
   6. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.

M. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
   1. Dry Locations: Use insulating covers specifically designed for the connectors, electrical tape, or heat shrink tubing.
      a. For taped connections, first apply adequate amount of rubber splicing electrical tape or electrical filler tape, followed by outer covering of vinyl insulating electrical tape.
   2. Damp Locations: Use insulating covers specifically designed for the connectors, electrical tape, or heat shrink tubing.

a. For connections with insulating covers, apply outer covering of moisture sealing electrical tape.
b. For taped connections, follow same procedure as for dry locations but apply outer covering of moisture sealing electrical tape.

3. Wet Locations: Use heat shrink tubing.

N. Insulate ends of spare conductors using vinyl insulating electrical tape.

O. Field-Applied Color Coding: Where vinyl color coding electrical tape is used in lieu of integrally colored insulation as permitted in Part 2 under "Color Coding", apply half overlapping turns of tape at each termination and at each location conductors are accessible.

P. Identify conductors and cables in accordance with Section 26 05 53.

Q. Color Code Legend: Provide identification label identifying color code for ungrounded and grounded conductors at each piece of feeder or branch-circuit distribution equipment.

R. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 84 00.

S. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

T. Protect exposed cable from damage.

U. Clean conductor surfaces before installing lugs and connectors.

V. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.

3.04 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for additional requirements.

B. Perform field inspection and testing in accordance with Section 01 40 00 - Quality Requirements.

C. Inspect and test in accordance with NETA ATS, except Section 4.

D. Perform inspections and tests listed in NETA ATS, Section 7.3.2. The insulation resistance test is required for all conductors. The resistance test for parallel conductors listed as optional is not required.

1. Disconnect surge protective devices (SPDs) prior to performing any high potential testing. Replace SPDs damaged by performing high potential testing with SPDs connected.

E. Correct deficiencies and replace damaged or defective conductors and cables.

END OF SECTION

SECTION 26 05 26
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Grounding and bonding requirements.

B. Conductors for grounding and bonding.

C. Connectors for grounding and bonding.

D. Ground bars.

E. Ground rod electrodes.

F. Ground enhancement material.

1.02 RELATED REQUIREMENTS

A. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables: Additional requirements for conductors for grounding and bonding, including conductor color coding.

B. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. IEEE 81 - IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounding System; 2012.

B. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

C. NEMA GR 1 - Grounding Rod Electrodes and Grounding Rod Electrode Couplings; 2022.

D. NETA ATS - Standard for Acceptance Testing Specifications for Electrical Power Equipment And Systems; 2025.

E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

F. UL 467 - Grounding and Bonding Equipment; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Verify exact locations of underground metal water service pipe entrances to building.
   2. Notify DEDC, LLC of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:
   1. Do not install ground rod electrodes until final backfill and compaction is complete.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittals procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for grounding and bonding system components.

C. Field quality control test reports.

D. Project Record Documents: Record actual locations of grounding electrode system components and connections.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

D. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 GROUNDING AND BONDING REQUIREMENTS

A. Existing Work: Where existing grounding and bonding system components are indicated to be reused, they may be reused only where they are free from corrosion, integrity and continuity are verified, and where acceptable to the authority having jurisdiction.

B. Do not use products for applications other than as permitted by NFPA 70 and product listing.

C. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.

D. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

E. Grounding System Resistance:
   1. Achieve specified grounding system resistance under normally dry conditions unless otherwise approved by DEDC, LLC. Precipitation within the previous 48 hours does not constitute normally dry conditions.
   2. Grounding Electrode System: Not greater than 5 ohms to ground, when tested according to IEEE 81 using "fall-of-potential" method.
   3. Between Grounding Electrode System and Major Electrical Equipment Frames, System Neutral, and Derived Neutral Points: Not greater than 0.5 ohms, when tested using "point-to-point" methods.

F. Grounding Electrode System:
   1. Provide connection to required and supplemental grounding electrodes indicated to form grounding electrode system.
      a. Provide continuous grounding electrode conductors without splice or joint.
      b. Install grounding electrode conductors in raceway where exposed to physical damage. Bond grounding electrode conductor to metallic raceways at each end with bonding jumper.
   2. Metal Underground Water Pipe(s):
      a. Provide connection to underground metal domestic and fire protection (where present) water service pipe(s) that are in direct contact with earth for at least 10 feet at an accessible location not more than 5 feet from the point of entrance to the building.
      b. Provide bonding jumper(s) around insulating joints/pipes as required to make pipe electrically continuous.
      c. Provide bonding jumper around water meter of sufficient length to permit removal of meter without disconnecting jumper.
   3. Ground Rod Electrode(s):
      a. Provide two electrodes unless otherwise indicated or required.
      b. Space electrodes not less than 10 feet from each other and any other ground electrode.
      c. Where location is not indicated, locate electrode(s) at least 5 feet outside building perimeter foundation as near as possible to electrical service entrance; where possible, locate in softscape (uncovered) area.

d. Provide ground enhancement material around electrode if required to achieve specified grounding electrode system resistance.

4. Provide additional ground electrode(s) as required to achieve specified grounding electrode system resistance.
5. Ground Bar: Provide ground bar, separate from service equipment enclosure, for common connection point of grounding electrode system bonding jumpers as permitted in NFPA 70. Connect grounding electrode conductor provided for service-supplied system grounding to this ground bar
   a. Ground Bar Size: minimum 1/4 by 2 by 12 inches with 18 mounting holes (9 sets of 2) suitable for connection with 2-bolt long barrel compression lugs unless otherwise indicated or required.
   b. Where ground bar location is not indicated, locate in accessible location as near as possible to service disconnect enclosure.
   c. Ground Bar Mounting Height: 18 inches above finished floor unless otherwise indicated.

G. Service-Supplied System Grounding:
1. For each service disconnect, provide grounding electrode conductor to connect neutral (grounded) service conductor to grounding electrode system. Unless otherwise indicated, make connection at neutral (grounded) bus in service disconnect enclosure.
2. For each service disconnect, provide main bonding jumper to connect neutral (grounded) bus to equipment ground bus where not factory-installed. Do not make any other connections between neutral (grounded) conductors and ground on load side of service disconnect.

H. Bonding and Equipment Grounding:
1. Provide bonding for equipment grounding conductors, equipment ground busses, metallic equipment enclosures, metallic raceways and boxes, device grounding terminals, and other normally non-current-carrying conductive materials enclosing electrical conductors/equipment or likely to become energized as indicated and in accordance with NFPA 70.
2. Provide green insulated copper equipment grounding conductor in each feeder and branch circuit raceway. Do not use raceways as sole equipment grounding conductor.
3. Where circuit conductor sizes are increased for voltage drop, increase size of equipment grounding conductor proportionally in accordance with NFPA 70.
4. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
5. Terminate branch circuit equipment grounding conductors on solidly bonded equipment ground bus only. Do not terminate on neutral (grounded) or isolated/insulated ground bus.
6. Provide bonding jumper across expansion or expansion/deflection fittings provided to accommodate conduit movement.
7. Provide bonding for interior metal piping systems in accordance with NFPA 70. This includes, but is not limited to:
   a. Metal water piping where not already effectively bonded to metal underground water pipe used as grounding electrode.
   b. Metal gas piping. NOTE: Contractor shall ensure that interior metal gas piping is electrically isolated from underground metal gas piping in order to prevent underground gas piping from inadvertently becoming a grounding electrode, as is prohibited by NFPA 70.
8. Provide bonding for interior metal air ducts.

I. Communications Systems Grounding and Bonding:
1. Provide bonding jumper (in raceway if subject to damage) from ground bar at service equipment to each communications equipment headend location and leave slack conductor for termination by others.
   a. Bonding Jumper Size: 6 AWG, unless otherwise indicated or required.

b. Raceway Size: 3/4 inch trade size unless otherwise indicated or required.

2.02 GROUNDING AND BONDING COMPONENTS

A. General Requirements:
1. Provide products listed, classified, and labeled as suitable for the purpose intended.
2. Provide products listed and labeled as complying with UL 467 where applicable.

B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 26 05 26:
1. Use insulated copper conductors unless otherwise indicated.
a. Exceptions:
1) Use bare copper conductors where installed underground in direct contact with earth.
2. Factory Pre-fabricated Bonding Jumpers: Furnished with factory-installed ferrules; size braided cables to provide equivalent gauge of specified conductors.

C. Connectors for Grounding and Bonding:
1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
2. Unless otherwise indicated, use exothermic welded connections or compression connectors for underground, concealed and other inaccessible connections.
3. Unless otherwise indicated, use mechanical connectors or compression connectors for accessible connections.
4. Manufacturers - Mechanical and Compression Connectors:
a. allG Fabrication: www.allgfab.com/#sle.
b. Burndy LLC: www.burndy.com/#sle.
c. Harger Lightning & Grounding: www.harger.com/#sle.
d. nVent ERICO: www.nvent.com/#sle.
e. Thomas & Betts Corporation: www.tnb.com/#sle.
f. Substitutions: See Section 01 60 00 - Product Requirements.
5. Manufacturers - Exothermic Welded Connections:
a. Burndy LLC: www.burndy.com/#sle.
b. nVent ERICO; Cadweld: www.nvent.com/#sle.
c. thermOweld, subsidiary of Continental Industries; division of Burndy LLC: www.thermoweld.com/#sle.
d. Substitutions: See Section 01 60 00 - Product Requirements.

D. Ground Bars:
1. Description: Copper rectangular ground bars with mounting brackets and insulators.
2. Size: As indicated above unless otherwise indicated or required.
3. Holes for Connections: As indicated above or as required for connections to be made.
4. Manufacturers:
a. allG Fabrication: www.allgfab.com/#sle.
b. Harger Lightning & Grounding: www.harger.com/#sle.
c. nVent ERICO: www.nvent.com/#sle.
d. thermOweld, subsidiary of Continental Industries; division of Burndy LLC: www.thermoweld.com/#sle.
e. Substitutions: See Section 01 60 00 - Product Requirements.

E. Ground Rod Electrodes:
1. Comply with NEMA GR 1.
2. Material: Copper-bonded (copper-clad) steel.
3. Size: 3/4 inch diameter by 10 feet length, unless otherwise indicated.
4. Where rod lengths of greater than 10 feet are indicated or otherwise required, sectionalized ground rods may be used.
5. Manufacturers:
a. allG Fabrication: www.allgfab.com/#sle.

b. Galvan Industries, Inc: www.galvanelectrical.com/#sle.
c. Harger Lightning & Grounding: www.harger.com/#sle.
d. nVent ERICO: www.nvent.com/#sle.
e. Substitutions: See Section 01 60 00 - Product Requirements.

F. Ground Enhancement Material:
1. Description: Factory-mixed conductive material designed for permanent and maintenance-free improvement of grounding effectiveness by lowering resistivity.
2. Resistivity: Not more than 20 ohm-cm in final installed form.
3. Manufacturers:
a. Harger Lightning & Grounding: www.harger.com/#sle.
b. nVent ERICO; GEM: www.nvent.com/#sle.
c. thermOweld, subsidiary of Continental Industries; division of Burndy LLC: www.thermoweld.com/#sle.
d. Substitutions: See Section 01 60 00 - Product Requirements.

G. Oxide Inhibiting Compound: Comply with Section 26 05 19.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that work likely to damage grounding and bonding system components has been completed.

B. Verify that field measurements are as indicated.

C. Verify that conditions are satisfactory for installation prior to starting work.

D. Verify existing conditions prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Ground Rod Electrodes: Unless otherwise indicated, install ground rod electrodes vertically. Where encountered rock prohibits vertical installation, install at 45 degree angle or bury horizontally in trench at least 30 inches (750 mm) deep in accordance with NFPA 70.
1. Outdoor Installations: Unless otherwise indicated, install with top of rod 6 inches below finished grade.

D. Make grounding and bonding connections using specified connectors.
1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.
3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer's recommendations.
4. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
5. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.

E. Equipment Grounding Conductors: Provide separate, green insulated copper equipment grounding conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus or bushing.

F. Identify grounding and bonding system components in accordance with Section 26 05 53.

3.03 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for additional requirements.

B. Inspect and test in accordance with NETA ATS except Section 4.

C. Perform inspections and tests listed in NETA ATS, Section 7.13.

D. Perform ground electrode resistance tests under normally dry conditions. Precipitation within the previous 48 hours does not constitute normally dry conditions.

E. Investigate and correct deficiencies where measured ground resistances do not comply with specified requirements.

F. Submit detailed reports indicating inspection and testing results and corrective actions taken.

END OF SECTION

SECTION 26 05 29
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Support and attachment requirements and components for equipment, conduit, cable, boxes, and other electrical work.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Concrete equipment pads.

B. Section 26 05 33.13 - Conduit for Electrical Systems: Additional support and attachment requirements for conduits.

C. Section 26 05 33.16 - Boxes for Electrical Systems: Additional support and attachment requirements for boxes.

D. Section 26 51 00 - Interior Lighting: Additional support and attachment requirements for interior luminaires.

1.03 REFERENCE STANDARDS

A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2024.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.

C. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2023.

D. MFMA-4 - Metal Framing Standards Publication; 2004.

E. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate sizes and arrangement of supports and bases with actual equipment and components to be installed.
   2. Coordinate work to provide additional framing and materials required for installation.
   3. Coordinate compatibility of support and attachment components with mounting surfaces at installed locations.
   4. Coordinate arrangement of supports with ductwork, piping, equipment and other potential conflicts.
   5. Notify DEDC, LLC of conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:
   1. Do not install products on or provide attachment to concrete surfaces until concrete has cured; see Section 03 30 00.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for channel/strut framing systems and post-installed concrete/masonry anchors.

C. Shop Drawings: Include details for fabricated hangers and supports where materials or methods other than those indicated are proposed for substitution.

1.06 QUALITY ASSURANCE

A. Maintain at project site one copy of each referenced document that prescribes execution requirements.

B. Product Listing Organization Qualifications: Organization recognized by OSHA as Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 SUPPORT AND ATTACHMENT COMPONENTS

A. General Requirements:
   1. Comply with the following. Where requirements differ, comply with most stringent.
      a. NFPA 70.
      b. Applicable building code.
      c. Requirements of authorities having jurisdiction.
   2. Provide required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for complete installation of electrical work.
   3. Provide products listed, classified, and labeled as suitable for purpose intended, where applicable.
   4. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supportedwith a minimum safety factor of five times the applied force. Include consideration for vibration, equipment operation, and shock loads where applicable.
   5. Do not use products for applications other than as permitted by NFPA 70 and product listing.
   6. Do not use wire, chain, perforated pipe strap, or wood for permanent supports unless specifically indicated or permitted.
   7. Steel Components: Use corrosion-resistant materials suitable for environment where installed.
      a. Indoor Dry Locations: Use zinc-plated steel or approved equivalent unless otherwise indicated.
      b. Outdoor and Damp or Wet Indoor Locations: Use galvanized steel, stainless steel, or approved equivalent unless otherwise indicated.
      c. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
      d. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.

B. Conduit and Cable Supports: Straps and clamps suitable for conduit or cable to be supported.
   1. Manufacturers:
      a. ABB: www.electrification.us.abb.com/#sle.
      b. Eaton Corporation: www.eaton.com/#sle.
      c. Emerson Electric Co; O-Z/Gedney: www.emerson.com/#sle.
      d. HoldRite, a brand of Reliance Worldwide Corporation: www.holdrite.com/#sle.
      e. Substitutions: See Section 01 60 00 - Product Requirements.
   2. Conduit Straps: One-hole or two-hole type; steel or malleable iron.
   3. Conduit Clamps: Bolted type unless otherwise indicated.
   4. Products:
      a. Gripple, Inc; Universal Bracket: www.gripple.com/#sle.
      b. Gripple, Inc; Fast Trak: www.gripple.com/#sle.
      c. Gripple, Inc; Universal Clamp (Threaded): www.gripple.com/#sle.
      d. Gripple, Inc; Low Profile Bracket Kits: www.gripple.com/#sle.
      e. Substitutions: See Section 01 60 00 - Product Requirements.

C. Outlet Box Supports: Hangers and brackets suitable for boxes to be supported.

1. Manufacturers:
   a. ABB: www.electrification.us.abb.com/#sle.
   b. Eaton Corporation: www.eaton.com/#sle.
   c. Emerson Electric Co; O-Z/Gedney: www.emerson.com/#sle.
   d. HoldRite, a brand of Reliance Worldwide Corporation: www.holdrite.com/#sle.
   e. Substitutions: See Section 01 60 00 - Product Requirements.

D. Metal Channel/Strut Framing Systems:
1. Manufacturers:
   a. ABB: www.electrification.us.abb.com/#sle.
   b. Atkore International Inc; Unistrut: www.unistrut.us/#sle.
   c. Eaton Corporation: www.eaton.com/#sle.
   d. Elgen Manufacturing Company, Inc: www.elgenmfg.com/#sle.
   e. Substitutions: See Section 01 60 00 - Product Requirements.
   f. Source Limitations: Furnish channel/strut and associated fittings, accessories, and hardware produced by single manufacturer.
2. Description: Factory-fabricated, continuous-slot, metal channel/strut and associated fittings, accessories, and hardware required for field assembly of supports.
3. Comply with MFMA-4.
4. Channel Material:
   a. Indoor Dry Locations: Use galvanized steel.
   b. Outdoor and Damp or Wet Indoor Locations: Use galvanized steel.
5. Minimum Channel Thickness: Steel sheet, 12 gauge, 0.1046 inch.
6. Minimum Channel Dimensions: 1-5/8 inch wide by 13/16 inch high.

E. Hanger Rods: Threaded, zinc-plated steel unless otherwise indicated.
1. Minimum Size, Unless Otherwise Indicated or Required:
   a. Equipment Supports: 1/2-inch diameter.
   b. Single Conduit up to 1-inch (27 mm) Trade Size: 1/4-inch diameter.
   c. Single Conduit Larger than 1-inch (27 mm) Trade Size: 3/8-inch diameter.
   d. Trapeze Support for Multiple Conduits: 3/8-inch diameter.
   e. Outlet Boxes: 1/4-inch diameter.
   f. Luminaires: 1/4-inch diameter.

F. Anchors and Fasteners:
1. Manufacturers - Mechanical Anchors:
   a. Dewalt: anchors.dewalt.com/#sle.
   b. Hilti, Inc: www.hilti.com/#sle.
   c. ITW Red Head, a division of Illinois Tool Works, Inc: www.itwredhead.com/#sle.
   d. Simpson Strong-Tie Company Inc: www.strongtie.com/#sle.
   e. Substitutions: See Section 01 60 00 - Product Requirements.
2. Unless otherwise indicated and where not otherwise restricted, use anchor and fastener types indicated for specified applications.
3. Concrete: Use preset concrete inserts, expansion anchors, or screw anchors.
4. Solid or Grout-Filled Masonry: Use expansion anchors or screw anchors.
5. Hollow Masonry: Use toggle bolts.
6. Hollow Stud Walls: Use toggle bolts.
7. Steel: Use beam clamps, machine bolts, or welded threaded studs.
8. Sheet Metal: Use sheet metal screws.
9. Wood: Use wood screws.
10. Plastic and lead anchors are not permitted.
11. Post-Installed Concrete and Masonry Anchors: Evaluated and recognized by ICC Evaluation Service, LLC (ICC-ES) for compliance with applicable building code.

2.02 MATERIALS

A. Hangers, Supports, Anchors, and Fasteners - General: Corrosion-resistant materials of size and type adequate to carry the loads of equipment and conduit, including weight of wire in conduit.

B. Supports: Fabricated of structural steel or formed steel members; galvanized.

C. Anchors and Fasteners:

	Drop in Sleeve Anchors	Expansion Machine Bolt Anchors	Lag Shield Anchors	Nail-in Anchors	Toggle Bolts	Hollow Wall Anchors	Power Driven Studs
Brick	X	X	X	X			X
Concrete	X	X	X	X			X
Concrete Block	X		X	X	X		
Cinder Block		X			X	X	
Stone	X	X		X			X
Marble	X		X				
Building Tile		X			X	X	
Ceramic Tile		X			X		
Terrazzo		X		X			
Terra Cotta		X			X	X	
Plaster					X	X	
Drywall				X	X		
Slate		X			X		
Steel							X

ANCHOR HARDWARE TABLE

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that mounting surfaces are ready to receive support and attachment components.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install hangers and supports in accordance with NECA 1.

C. Install anchors and fasteners in accordance with ICC Evaluation Services, LLC (ICC-ES) evaluation report conditions of use where applicable.

D. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.

E. Unless specifically indicated or approved by DEDC, LLC, do not provide support from suspended ceiling support system or ceiling grid.

F. Unless specifically indicated or approved by DEDC, LLC, do not provide support from roof deck.

G. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.

H. Equipment Support and Attachment:
   1. Use metal, fabricated supports or supports assembled from metal channel/strut to support equipment as required.
   2. Use metal channel/strut secured to studs to support equipment surface mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
   3. Use metal channel/strut to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
   4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.

I. Conduit Support and Attachment: See Section 26 05 33.13 for additional requirements.

J. Box Support and Attachment: See Section 26 05 33.16 for additional requirements.

K. Interior Luminaire Support and Attachment: See Section 26 51 00 for additional requirements.

L. Secure fasteners in accordance with manufacturer's recommended torque settings.

M. Remove temporary supports.

N. Identify independent electrical component support wires above accessible ceilings with color distinguishable from ceiling support wires in accordance with NFPA 70.

3.03 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements for additional requirements.

B. Inspect support and attachment components for damage and defects.

C. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.

D. Correct deficiencies and replace damaged or defective support and attachment components.

E. Install hangers and supports as required to adequately and securely support electrical system components, in a neat and workmanlike manner, as specified in NECA 1.
   1. Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.
   2. Do not drill or cut structural members.

F. Rigidly weld support members or use hexagon-head bolts to present neat appearance with adequate strength and rigidity. Use spring lock washers under all nuts.

G. Install surface-mounted cabinets and panelboards with minimum of four anchors.

H. In wet and damp locations use steel channel supports to stand cabinets and panelboards 1-5/8" off wall.

I. Use sheet metal channel to bridge studs above and below cabinets and panelboards recessed in hollow partitions.

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SECTION 26 05 33.13
CONDUIT FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Galvanized steel rigid metal conduit (RMC).

B. Flexible metal conduit (FMC).

C. Liquidtight flexible metal conduit (LFMC).

D. Galvanized steel electrical metallic tubing (EMT).

E. Conduit fittings and conduit bodies.

1.02 RELATED REQUIREMENTS

A. Section 07 84 00 - Firestopping.

B. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables: Metal clad cable (Type MC), including uses permitted.

C. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
   1. Includes additional requirements for fittings for grounding and bonding.

D. Section 26 05 29 - Hangers and Supports for Electrical Systems.

E. Section 26 05 33.16 - Boxes for Electrical Systems.

F. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC); 2020.

B. ANSI C80.3 - American National Standard for Electrical Metallic Tubing -- Steel (EMT-S); 2020.

C. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

D. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT); 2020.

E. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2014.

F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

G. UL 1 - Flexible Metal Conduit; Current Edition, Including All Revisions.

H. UL 6 - Electrical Rigid Metal Conduit-Steel; Current Edition, Including All Revisions.

I. UL 360 - Liquid-Tight Flexible Metal Conduit; Current Edition, Including All Revisions.

J. UL 514B - Conduit, Tubing, and Cable Fittings; Current Edition, Including All Revisions.

K. UL 797 - Electrical Metallic Tubing-Steel; Current Edition, Including All Revisions.

L. UL 2419 - Outline of Investigation for Electrically Conductive Corrosion Resistant Compounds; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate minimum sizes of conduits with actual type and quantity of conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
   2. Coordinate arrangement of conduits with structural members, ductwork, piping, equipment, and other potential conflicts.
   3. Verify exact conduit termination locations required for boxes, enclosures, and equipment.
   4. Notify DEDC, LLC of conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:
   1. Do not begin installation of conductors and cables until installation of conduit between termination points is complete.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittals procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for conduits and fittings.

C. Project Record Documents: Record actual routing for conduits 2 inch (53 mm) trade size and larger.

1.06 QUALITY ASSURANCE

A. Documents at Project Site: Maintain at project site one copy of manufacturer's instructions and shop drawings.

B. Product Listing Organization Qualifications: Organization recognized by OSHA as Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. See Section 01 74 19 - Construction Waste Management and Disposal for packaging waste requirements.

B. Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.

C. Accept conduit on site. Inspect for damage.

D. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

PART 2 PRODUCTS

2.01 CONDUIT APPLICATIONS

A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70, manufacturer's instructions, and product listing.

B. Unless otherwise indicated and where not otherwise restricted, use conduit types indicated for specified applications. Where more than one listed application applies, comply with most restrictive requirements. Where conduit type for particular application is not specified, use galvanized steel rigid metal conduit.

C. Concealed Within Masonry Walls: Use electrical metallic tubing (EMT).

D. Concealed Within Hollow Stud Walls: Use electrical metallic tubing (EMT).

E. Concealed Above Accessible Ceilings: Use electrical metallic tubing (EMT).

F. Interior, Damp or Wet Locations: Use galvanized steel rigid metal conduit (RMC).

G. Exposed, Interior (including unfinished spaces), Not Subject to Physical Damage: Use electrical metallic tubing (EMT).

H. Exposed, Interior (including unfinished spaces), Subject to Physical Damage: Use galvanized steel rigid metal conduit.
   1. Locations subject to physical damage include, but are not limited to:
      a. Where exposed below 8 feet, except within electrical and communication rooms or closets.
      b. Where exposed below 20 feet in warehouse areas.

I. Exposed, Exterior: Use galvanized steel rigid metal conduit.

J. Concealed, Exterior, Not Embedded in Concrete or in Contact With Earth: Use galvanized steel rigid metal conduit.

K. Flexible Connections to Luminaires Above Accessible Ceilings: Use flexible metal conduit (FMC).
   1. Maximum Length: 6 feet.

L. Flexible Connections to Vibrating Equipment:
   1. Dry Locations: Use flexible metal conduit (FMC).
   2. Damp, Wet, or Corrosive Locations: Use liquidtight flexible metal conduit (LFMC).
   3. Maximum Length: 18 inches unless otherwise indicated.
   4. Vibrating equipment includes, but is not limited to:
      a. Transformers.
      b. Motors.

M. Other Applications where Flexible Connections to Equipment are Required:
   1. Dry Locations: Use flexible metal conduit (FMC).
   2. Damp, Wet, or Corrosive Locations: Use liquidtight flexible metal conduit (LFMC).
   3. Maximum Length: 18 inches unless otherwise indicated.

N. Fished in Existing Walls, Where Necessary: Use flexible metal conduit.

2.02 CONDUIT - GENERAL REQUIREMENTS

A. Comply with NFPA 70.

B. Existing Work: Where existing conduits are indicated to be reused, they may be reused only where they comply with specified requirements, are free from corrosion, and integrity is verified by pulling mandrel through them.

C. Fittings for Grounding and Bonding: See Section 26 05 26 for additional requirements.

D. Provide conduit, fittings, supports, and accessories required for complete raceway system.

E. Provide products listed, classified, and labeled as suitable for purpose intended.

F. Minimum Conduit Size, Unless Otherwise Indicated:
   1. Branch Circuits: 3/4-inch trade size.
   2. Branch Circuit Homeruns: 3/4-inch trade size.
   3. Control Circuits: 1/2-inch trade size.
   4. Flexible Connections to Luminaires: 3/8-inch trade size.

G. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.03 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

A. Manufacturers:
   1. Allied Tube & Conduit, a division of Atkore International: www.alliedeg.com/#sle.
   2. Nucor Tubular Products: www.nucortubular.com/#sle.
   3. Rymco USA: www.rymcousa.com/#sle.
   4. Western Tube, a division of Zekelman Industries: www.westerntube.com/#sle.
   5. Wheatland Tube, a division of Zekelman Industries: www.wheatland.com/#sle.
   6. Substitutions: See Section 01 60 00 - Product Requirements.

B. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.

C. Fittings:
   1. Manufacturers:
      a. ABB; T&B: www.electrification.us.abb.com/#sle.
      b. Allied Tube & Conduit, a division of Atkore International: www.alliedeg.us/#sle.
      c. Bridgeport Fittings Inc: www.bptfittings.com/#sle.
      d. Emerson Electric Co; O-Z/Gedney: www.emerson.com/#sle.
      e. Substitutions: See Section 01 60 00 - Product Requirements.
   2. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6.

3. Material: Use steel or malleable iron.
    a. Do not use die cast zinc fittings.
4. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

2.04 FLEXIBLE METAL CONDUIT (FMC)

A. Manufacturers:
1. AFC Cable Systems, Inc: www.afcweb.com/#sle.
2. Electri-Flex Company: www.electriflex.com/#sle.
3. International Metal Hose: www.metalhose.com/#sle.
4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Description: NFPA 70, Type FMC standard-wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems.

C. Fittings:
1. Manufacturers:
    a. ABB; T&B: www.electrification.us.abb.com/#sle.
    b. Bridgeport Fittings, LLC: www.bptfittings.com/#sle.
    c. Emerson Electric Co; O-Z/Gedney: www.emerson.com/#sle.
    d. Substitutions: See Section 01 60 00 - Product Requirements.
2. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
3. Material: Use steel or malleable iron.
    a. Do not use die cast zinc fittings.

2.05 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

A. Manufacturers:
1. AFC Cable Systems, Inc: www.afcweb.com/#sle.
2. Electri-Flex Company: www.electriflex.com/#sle.
3. International Metal Hose: www.metalhose.com/#sle.
4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.

C. Fittings:
1. Manufacturers:
    a. ABB; T&B: www.electrification.us.abb.com/#sle.
    b. Bridgeport Fittings, LLC: www.bptfittings.com/#sle.
    c. Emerson Electric Co; O-Z/Gedney: www.emerson.com/#sle.
    d. Substitutions: See Section 01 60 00 - Product Requirements.
2. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
3. Material: Use steel or malleable iron.
    a. Do not use die cast zinc fittings.

2.06 GALVANIZED STEEL ELECTRICAL METALLIC TUBING (EMT)

A. Manufacturers:
1. Allied Tube & Conduit: www.alliedeg.com.
2. Nucor Tubular Products: www.nucortubular/#sle.
3. Rymco USA: www.rymcousa.com/#sle.
4. Western Tube, a division of Zekelman Industries: www.westerntube.com/#sle.
5. Wheatland Tube Company: www.wheatland.com/#sle.
6. Substitutions: See Section 01 60 00 - Product Requirements.

B. Description: NFPA 70, Type EMT galvanized steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.

C. Fittings:
   1. Manufacturers:
      a. ABB; T&B: www.electrification.us.abb.com/#sle.
      b. Allied Tube & Conduit, a division of Atkore International: www.alliedeg.us/#sle.
      c. Bridgeport Fittings, LLC: www.bptfittings.com/#sle.
      d. Emerson Electric Co; O-Z/Gedney: www.emerson.com/#sle.
      e. Substitutions: See Section 01 60 00 - Product Requirements.
   2. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
   3. Material: Use steel or malleable iron.
      a. Do not use die cast zinc fittings.
   4. Connectors and Couplings: Use compression (gland) type.
      a. Do not use indenter type connectors and couplings.
      b. Do not use set-screw type connectors and couplings.

2.07 ACCESSORIES

A. Conduit Joint Compound: Corrosion-resistant, electrically conductive compound listed as complying with UL 2419; suitable for use with conduit to be installed.

B. Pull Strings: Use nylon or polyester tape with average breaking strength of not less than 1,250 lbf.

C. Foam Conduit Sealant:
   1. Removable, two-part, closed-cell foam, specifically designed for sealing conduit openings against water, moisture, gases, and dust.
   2. Suitable for use with conductors/cables and associated insulation/jackets to be installed.
   3. Rated to hold minimum of 10 ft water head pressure.
   4. Products:
      a. American Polywater Corporation; Polywater AFT Foam Duct Sealant: www.polywater.com/#sle.
      b. American Polywater Corporation; Polywater FST Foam Duct Sealant: www.polywater.com/#sle.
      c. Substitutions: See Section 01 60 00 - Product Requirements.

D. Sealing Systems for Concrete Penetrations:
   1. Sleeves: Provide water stop ring or cement coating that bonds to concrete to prevent water infiltration.
   2. Rate for minimum of 40 psig; suitable for sealing around conduits to be installed.
   3. Products:
      a. American Polywater Corporation; PZVR Cement-Coated Concrete Wall Sleeves: www.polywater-haufftechnik.com/#sle.
      b. American Polywater Corporation; PHSD Mechanical Seals: www.polywater-haufftechnik.com/#sle.
      c. American Polywater Corporation; PHSI 150 Varia Double Wall Inserts: www.polywater-haufftechnik.com/#sle.
      d. American Polywater Corporation; PGKD Modular Seals: www.polywater-haufftechnik.com/#sle.
      e. Substitutions: See Section 01 60 00 - Product Requirements.

E. Firestop Sleeves: Listed; provide as required to preserve fire resistance rating of building elements.
   1. Products:
      a. HoldRite, a brand of Reliance Worldwide Corporation; HydroFlame Pro Series/HydroFlame Custom Built: www.holdrite.com/#sle.
      b. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that mounting surfaces are ready to receive conduits.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. All conduit penetrations into equipment enclosures shall be made by the Electrical Contractor.

C. Install conduit securely in a neat and workmanlike manner in accordance with NECA 1.

D. Galvanized Steel Rigid Metal Conduit (RMC): Install in accordance with NECA 101.

E. Conduit Routing:
   1. Unless dimensioned, conduit routing indicated is diagrammatic.
   2. When conduit destination is indicated without specific routing, determine exact routing required.
   3. Conceal all conduits within finished walls, ceilings and floors unless specifically indicated to be exposed.
   4. Conduits in the following areas may be exposed, unless otherwise indicated:
      a. Electrical rooms.
      b. Mechanical equipment rooms.
      c. Within joists in areas with no ceiling.
   5. Unless otherwise approved, do not route exposed conduits:
      a. Across floors.
      b. Across roofs.
      c. Across top of parapet walls.
      d. Across building exterior surfaces.
   6. Arrange conduit to maintain adequate headroom, clearances, and access.
   7. Arrange conduit to provide no more than the equivalent of four 90 degree bends between pull points. Use conduit bodies to make sharp changes in direction, as around beams. Use hydraulic one-shot bender to fabricate bends in metal conduit larger than 2 inch size.
   8. Arrange conduit to provide no more than 150 feet between pull points.
   9. Route conduits above water and drain piping where possible.
   10. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.
   11. Maintain minimum clearance of 6 inches between conduits and piping for other systems.
   12. Maintain minimum clearance of 12 inches between conduits and hot surfaces. This includes, but is not limited to:
      a. Heaters.
      b. Hot water piping.
      c. Flues.
   13. Group parallel conduits in same area on common rack.

F. Conduit Support:
   1. Secure and support conduits in accordance with NFPA 70 using suitable supports and methods approved by authorities having jurisdiction; see Section 26 05 29.
   2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
   3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
   4. Use conduit strap to support single surface-mounted conduit.
      a. Use clamp back spacer with conduit strap for damp and wet locations to provide space between conduit and mounting surface.

5. Use metal channel/strut with accessory conduit clamps to support multiple parallel surface-mounted conduits.
6. Use conduit clamp to support single conduit from beam clamp or threaded rod.
7. Use trapeze hangers assembled from threaded rods and metal channel/strut with accessory conduit clamps to support multiple parallel suspended conduits.
8. Use of spring steel conduit clips for support of conduits is not permitted.
9. Use of wire for support of conduits is not permitted. Remove all wire used for temporary supports.
10. Use of perforated pipe straps for support of conduits is not permitted.
11. Where conduit support intervals specified in NFPA 70 and NECA standards differ, comply with most stringent requirements.

G. Connections and Terminations:
1. Use fittings compatible with conduit used and suitable for location.
2. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
3. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
4. Use suitable adapters where required to transition from one type of conduit to another.
5. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.
6. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
7. Provide insulating bushings, insulated throats, or listed metal fittings with smooth, rounded edges at conduit terminations to protect conductors.
8. Bring conduit to shoulders of fittings. Secure joints and connections tightly to provide maximum mechanical strength and electrical continuity. Use bonding bushings or wedges at connections subject to vibration.

H. Penetrations:
1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
2. All penetrations through floors or walls shall be core-drilled. Use of jack hammers shall not be permitted. Maximum hole diameters shall not exceed 6 inches. All holes shall be spaced at least 18 inches apart in all directions. Re-use of existing penetrations shall be permitted.
3. Prior to any core drilling through floors or walls, the Electrical Contractor shall visually survey both sides to determine if any pipes, ducts or electrical utilities exist that may present obstacles. The Electrical Contractor shall also indentify locations of existing concrete slab reinforcement or in-slab utilities using a pachometer, x-ray or similar device. All core-drilled penetrations shall be a minimum of 3 inches away from existing concrete slab reinforcement or in-slab utilities.
4. Make penetrations perpendicular to surfaces unless otherwise indicated.
5. Provide steel sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
6. Provide suitable sealing system where conduits penetrate exterior wall below grade.
7. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
8. Provide metal escutcheon plates for conduit penetrations exposed to public view.
9. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 84 00.

I. Stub-Up Connections for Equipment: Extend conductors to equipment with rigid metal conduit (RMC). Flexible metal conduit (FMC) or liquidtight flexible metal conduit (LFMC) may be used 6 inches above the floor.

J. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings or approved flexible connections to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
   1. Where conduits cross structural joints intended for expansion, contraction, or deflection.

K. Conduit Sealing:
   1. Use foam conduit sealant to prevent entry of moisture and gases. This includes, but is not limited to:
      a. Where conduits enter building from outside.
      b. Where service conduits enter building from underground distribution system.
      c. Where conduits enter building from underground.
      d. Where conduits may transport moisture to contact live parts.
   2. Where conduits cross barriers between areas of potential substantial temperature differential, use foam conduit sealant at accessible point near penetration to prevent condensation. This includes, but is not limited to:
      a. Where conduits pass from outdoors into conditioned interior spaces.
      b. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.

L. Provide pull string in each empty conduit and in conduits where conductors and cables are to be installed by others. Leave minimum slack of 12 inches at each end.

M. Provide grounding and bonding of conduit in accordance with Section 26 05 26.

N. Identify conduits; see Section 26 05 53.

3.03 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements for additional requirements.

B. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.

C. Correct deficiencies and replace damaged or defective conduits.

3.04 CLEANING

A. Clean interior of conduits to remove moisture and foreign matter.

3.05 PROTECTION

A. Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

B. Arrange supports to prevent misalignment during wiring installation.

C. Cut conduit square using saw or pipecutter; de-burr cut ends.

END OF SECTION

SECTION 26 05 33.16
BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Outlet and device boxes up to 100 cubic inches, including those used as junction and pull boxes.

B. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches.

1.02 RELATED REQUIREMENTS

A. Section 07 84 00 - Firestopping.

B. Section 26 05 26 - Grounding and Bonding for Electrical Systems.

C. Section 26 05 29 - Hangers and Supports for Electrical Systems.

D. Section 26 05 33.13 - Conduit for Electrical Systems:
   1. Conduit bodies and other fittings.
   2. Additional requirements for locating boxes to limit conduit length and/or number of bends between pulling points.

E. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.

F. Section 26 27 26 - Wiring Devices:
   1. Wall plates.
   2. Additional requirements for locating boxes for wiring devices.

G. Section 27 10 00 - Structured Cabling for Voice and Data (DTI): Additional requirements for communications systems outlet boxes.

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

B. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2016.

C. NEMA EN 10250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2024.

D. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2014.

E. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports; 2013 (Reaffirmed 2020).

F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

G. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.

H. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.

I. UL 508A - Industrial Control Panels; Current Edition, Including All Revisions.

J. UL 514A - Metallic Outlet Boxes; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
   2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.

3. Coordinate minimum sizes of boxes with the actual installed arrangement of conductors, clamps, support fittings, and devices, calculated according to NFPA 70.
4. Coordinate minimum sizes of pull boxes with the actual installed arrangement of connected conduits, calculated according to NFPA 70.
5. Coordinate the placement of boxes with millwork, furniture, devices, equipment, etc. installed under other sections or by others.
6. Coordinate the work with other trades to preserve insulation integrity.
7. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted boxes where indicated.
8. Notify DEDC, LLC of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for outlet and device boxes and junction and pull boxes.

C. Project Record Documents: Record actual locations for pull boxes.

D. Maintenance Materials: Furnish the following for State of Delaware OMB - Division of Facilities Management's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 BOXES

A. General Requirements:
   1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
   2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
   3. Provide products listed, classified, and labeled as suitable for the purpose intended.
   4. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
   5. Provide grounding terminals within boxes where equipment grounding conductors terminate.

B. Outlet and Device Boxes Up to 100 cubic inches, Including Those Used as Junction and Pull Boxes:
   1. Use sheet-steel boxes for concealed interior dry locations unless otherwise indicated or required.
   2. Use cast iron boxes or cast aluminum boxes for exposed interior dry locations, and for interior and exterior damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
   3. Use cast iron boxes or cast aluminum boxes where exposed galvanized steel rigid metal conduit is used.

4. Use suitable concrete type boxes where flush-mounted in concrete.
5. Use suitable masonry type boxes where flush-mounted in masonry walls.
6. Use raised covers suitable for the type of wall construction and device configuration where required.
7. Use shallow boxes where required by the type of wall construction.
8. Do not use "through-wall" boxes designed for access from both sides of wall.
9. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.
10. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.
11. Boxes for Supporting Luminaires and Ceiling Fans: Listed as suitable for the type and weight of load to be supported; furnished with fixture stud to accommodate mounting of luminaire where required.
12. Boxes for Ganged Devices: Use multigang boxes of single-piece construction. Do not use field-connected gangable boxes unless specifically indicated or permitted.
13. Minimum Box Size, Unless Otherwise Indicated:
    a. Junction Boxes: 4 inch square by 2-1/8 inch deep (100 by 54 mm) trade size.
    b. Wiring Devices: 4 inch square by 2-1/8 inch deep (100 by 54 mm) trade size.
    c. Communications Systems Outlets: 4 inch square by 2-1/8 inch (100 by 54 mm) trade size.
    d. Ceiling Outlets: 4 inch octagonal or square by 2-1/8 inch deep (100 by 54 mm) trade size.
14. Wall Plates: Comply with Section 26 27 26.
15. Manufacturers:
    a. Cooper Crouse-Hinds, a division of Eaton Corporation: www.cooperindustries.com/#sle.
    b. Hubbell Incorporated; Bell Products: www.hubbell-rtb.com/#.
    c. Hubbell Incorporated; RACO Products: www.hubbell-rtb.com/#sle.
    d. O-Z/Gedney, a brand of Emerson Electric Co: www.emerson.com/#sle.
    e. Thomas & Betts Corporation; Steel City Products: www.tnb.com/#sle.
    f. Substitutions: See Section 01 60 00 - Product Requirements.

C. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches:
1. Comply with NEMA EN 10250, and list and label as complying with UL 50 and UL 50E, or UL 508A.
2. NEMA EN 10250 Environment Type, Unless Otherwise Indicated:
    a. Indoor Clean, Dry Locations: Type 1, painted steel.
    b. Outdoor Locations: Type 3R, painted steel.
3. Junction and Pull Boxes Larger Than 100 cubic inches:
    a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.
4. Finish for Painted Steel Enclosures: Manufacturer's standard grey unless otherwise indicated.
5. Manufacturers:
    a. Cooper B-Line, a division of Eaton Corporation: www.cooperindustries.com/#sle.
    b. Hoffman, a brand of Pentair Technical Products: www.hoffmanonline.com/#sle.
    c. Hubbell Incorporated; Wiegmann Products: www.hubbell-wiegmann.com/#sle.
    d. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that mounting surfaces are ready to receive boxes.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install boxes in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.

C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

D. Unless otherwise indicated, provide separate boxes for line voltage and low voltage systems.

E. Flush-mount boxes in finished areas unless specifically indicated to be surface-mounted.

F. Unless otherwise indicated, boxes may be surface-mounted where exposed conduits are indicated or permitted.

G. Box Locations:
   1. Locate boxes to be accessible.
   2. Unless dimensioned, box locations indicated are approximate.
   3. Locate and orient boxes as required for devices installed under other sections or by others.
      a. Switches, Receptacles, and Other Wiring Devices: Comply with Section 26 27 26.
      b. Communications Systems Outlets: Comply with Section 27 10 00.
   4. Locate boxes so that wall plates do not span different building finishes.
   5. Locate boxes so that wall plates do not cross masonry joints.
   6. Unless otherwise indicated, where multiple outlet boxes are installed at the same location at different mounting heights, install along a common vertical center line.
   7. Do not install flush-mounted boxes on opposite sides of walls back-to-back. Provide minimum 6 inches horizontal separation unless otherwise indicated:
      a. Acoustic-Rated Walls: Do not install flush-mounted boxes on opposite sides of walls back-to-back; provide minimum 24 inches horizontal separation.
      b. Fire Resistance Rated Walls: Install flush-mounted boxes such that the required fire resistance will not be reduced.
         1) Do not install flush-mounted boxes on opposite sides of walls back-to-back; provide minimum 24 inches separation where wall is constructed with individual noncommunicating stud cavities or protect both boxes with listed putty pads.
         2) Do not install flush-mounted boxes with area larger than 16 square inches or such that the total aggregate area of openings exceeds 100 square inches for any 100 square feet of wall area.
   8. Locate junction and pull boxes as indicated, as required to facilitate installation of conductors, and to limit conduit length and/or number of bends between pulling points in accordance with Section 26 05 33.13.
   9. Locate junction and pull boxes in the following areas, unless otherwise indicated:
      a. Concealed above accessible suspended ceilings.
      b. Within joists in areas with no ceiling.
      c. Electrical rooms.
      d. Mechanical equipment rooms.

H. Box Supports:
   1. Secure and support boxes in accordance with NFPA 70 and Section 26 05 29 using suitable supports and methods approved by the authority having jurisdiction.
   2. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in accordance with NFPA 70. Do not provide support from piping, ductwork, or other systems.
   3. Installation Above Suspended Ceilings: Do not provide support from ceiling grid or ceiling support system.

4. Use far-side support to secure flush-mounted boxes supported from single stud in hollow stud walls. Repair or replace supports for boxes that permit excessive movement.

I. Install boxes plumb and level.

J. Flush-Mounted Boxes:
1. Install boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that front edge of box or associated raised cover is not set back from finished surface more than 1/4 inch or does not project beyond finished surface.
2. Install boxes in combustible materials such as wood so that front edge of box or associated raised cover is flush with finished surface.
3. Repair rough openings around boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that there are no gaps or open spaces greater than 1/8 inch at the edge of the box.

K. Install boxes as required to preserve insulation integrity.

L. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.

M. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 84 00.

N. Close unused box openings.

O. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.

P. Provide grounding and bonding of boxes, enclosures and cabinets in accordance with Section 26 05 26.

Q. Identify boxes in accordance with Section 26 05 53.

R. Install in locations as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and as required by NFPA 70.

S. Set wall mounted boxes at elevations to accommodate mounting heights indicated.

T. Electrical boxes are shown on Drawings in approximate locations unless dimensioned.
1. Adjust box locations up to 10 feet if required to accommodate intended purpose.

U. Maintain headroom and present neat mechanical appearance.

V. Inaccessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.

W. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.

X. Locate outlet boxes to allow luminaires to be positioned as shown on reflected ceiling plan.

Y. Align adjacent wall mounted outlet boxes for switches, thermostats, and similar devices.

Z. Locate flush mounting boxes in masonry walls to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat opening.

AA. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness.

BB. Use gang boxes with plaster rings for single device outlets unless otherwise indicated.

3.03 ADJUSTING

A. Adjust flush-mounting outlets to make front flush with finished wall material.

B. Install knockout closures in unused box openings.

3.04 CLEANING

A. Clean interior of boxes to remove dirt, debris, plaster and other foreign material.

B. Clean exposed surfaces and restore finish.

3.05 PROTECTION

A. Immediately after installation, protect boxes from entry of moisture and foreign material until ready for installation of conductors.

END OF SECTION

SECTION 26 05 53
IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical identification requirements.

B. Identification nameplates and labels.

C. Wire and cable markers.

D. Voltage markers.

E. Floor marking tape.

F. Warning signs and labels.

1.02 RELATED REQUIREMENTS

A. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables: Color coding for power conductors and cables 600 V and less; vinyl color coding electrical tape.

B. Section 26 27 26 - Wiring Devices - Lutron: Device and wallplate finishes; factory pre-marked wallplates.

1.03 REFERENCE STANDARDS

A. ANSI Z535.2 - American National Standard for Environmental and Facility Safety Signs; 2023.

B. ANSI Z535.4 - American National Standard for Product Safety Signs and Labels; 2023.

C. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

D. NFPA 70E - Standard for Electrical Safety in the Workplace; 2024.

E. UL 969 - Marking and Labeling Systems; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Verify final designations for equipment, systems, and components to be identified prior to fabrication of identification products.

B. Sequencing:
   1. Do not conceal items to be identified, in locations such as above suspended ceilings, until identification products have been installed.
   2. Do not install identification products until final surface finishes and painting are complete.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittals procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product.

C. Shop Drawings: Provide schedule of items to be identified indicating proposed designations, materials, legends, and formats.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.07 FIELD CONDITIONS

A. Do not install adhesive products when ambient temperature is lower than recommended by manufacturer.

PART 2 PRODUCTS

2.01 IDENTIFICATION REQUIREMENTS

A. Identification for Equipment:

1. Use identification nameplate or identification label to identify each piece of electrical distribution and control equipment and associated sections, compartments, and components.
    a. Panelboards:
        1) Identify ampere rating.
        2) Identify voltage and phase.
        3) Identify power source and circuit number. Include location when not within sight of equipment.
        4) Identify main overcurrent protective device. Use identification label for panelboards with a door.
        5) Use typewritten circuit directory to identify load(s) served for panelboards with a door. Identify spares and spaces using pencil.
    b. Enclosed switches and motor controllers:
        1) Identify voltage and phase.
        2) Identify power source and circuit number. Include location when not within sight of equipment.
        3) Identify load(s) served. Include location when not within sight of equipment.
2. Service Equipment:
    a. Use identification nameplate or identification label to identify each service disconnecting means.
3. Use identification nameplate or identification label to identify panelboards utilizing a high leg delta system in accordance with NFPA 70.
4. Use identification nameplate or identification label to identify disconnect location for equipment with remote disconnecting means.
5. Use identification label on inside of door at each fused switch to identify required NEMA fuse class and size.
6. Use identification label to identify overcurrent protective devices for branch circuits serving fire alarm circuits. Identify with text "FIRE ALARM CIRCUIT".
7. Use floor marking tape to identify required equipment working clearances where indicated or where required by the authority having jurisdiction.
8. Available Fault Current Documentation: Use identification label or identification nameplate to identify the available fault current and date calculations were performed at locations requiring documentation by NFPA 70 including but not limited to the following.
    a. Service equipment.
9. Use warning signs to identify electrical hazards for entrances to all rooms and other guarded locations that contain exposed live parts operating at 600 V nominal or less with the word message "DANGER; Electrical hazard; Authorized personnel only" or approved equivalent.
10. Use warning labels to identify electrical hazards for equipment where multiple power sources are present with the word message "DANGER; Hazardous voltage; Multiple power sources may be present; Disconnect all electric power including remote disconnects before servicing" or approved equivalent.

B. Identification for Conductors and Cables:
1. Color Coding for Power Conductors 600 V and Less: Comply with Section 26 05 19.
2. Use identification label to identify color code for ungrounded and grounded power conductors inside door or enclosure at each piece of feeder or branch-circuit distribution equipment.
3. Use wire and cable markers to identify circuit number or other designation indicated for power, control, and instrumentation conductors and cables at the following locations:
    a. At each source and load connection.
    b. Within boxes when more than one circuit is present.
    c. Within equipment enclosures when conductors and cables enter or leave the enclosure.

4. Use wire and cable markers to identify connected grounding electrode system components for grounding electrode conductors.

C. Identification for Raceways:
1. Use voltage markers, color-coded bands, or factory-painted conduits to identify systems other than normal power system for accessible conduits.
   a. Maximum Intervals: 20 feet.
   b. Color-Coded Bands: Use field-painting or vinyl color coding electrical tape to mark bands 3 inches wide.
      1) Vinyl Color Coding Electrical Tape: Comply with Section 26 05 19.
   c. Color Code:
      1) Fire Alarm System: Red.
2. Use identification labels or plastic marker tags to identify circuits enclosed for accessible conduits at wall penetrations, at floor penetrations, and at equipment terminations when source is not within sight.
3. Use identification labels or plastic marker tags to identify spare conduits at each end. Identify purpose and termination location.

D. Identification for Boxes:
1. Use identification labels to identify highest voltage present.
2. Use voltage markers or color coded boxes to identify systems other than normal power system.
   a. Color-Coded Boxes: Field-painted with the same color code used for raceways.
      1) Fire Alarm System: Red.
3. Use identification labels to identify circuits enclosed.
   a. Identify circuits via power source and circuit numbers.
      1) Include voltage and phase for other than 120 V, single phase circuits.

E. Identification for Devices:
1. Wiring Device and Wallplate Finishes: Comply with Section 26 27 26.
2. Use identification label to identify fire alarm system devices.
   a. For devices concealed above suspended ceilings, provide additional identification on ceiling tile below device location.
3. Use identification label to identify serving branch circuit for all receptacles.
   a. For receptacles with weatherproof covers, provide identification on inside surface of weatherproof cover.
4. Use identification label to identify load controlledfor wall-mounted control devices.

F. Identification for Luminaires:
1. Use permanent red dot on luminaire frame to identify luminaires connected to emergency power system or with integral emergency battery units.

2.02 IDENTIFICATION NAMEPLATES AND LABELS

A. Identification Nameplates:
1. Manufacturers:
   a. Brimar Industries, Inc: www.brimar.com/#sle.
   b. Kolbi Pipe Marker Co: www.kolbipipemarkers.com/#sle.
   c. Seton Identification Products: www.seton.com/#sle.
   d. Substitutions: See Section 01 60 00 - Product Requirements.
2. Materials:
   a. Indoor Clean, Dry Locations: Use plastic nameplates.
   b. Outdoor Locations: Use plastic nameplates suitable for exterior use.
3. Plastic Nameplates: Two-layer or three-layer laminated acrylic or electrically non-conductive phenolic with beveled edges; minimum thickness of 1/16 inch; engraved text.
   a. Exception: Provide minimum thickness of 1/8 inch when any dimension is greater than 4 inches.

4. Mounting Holes for Mechanical Fasteners: Two, centered on sides for sizes up to 1 inch high; Four, located at corners for larger sizes.

B. Identification Labels:
1. Manufacturers:
a. Brady Corporation: www.bradyid.com/#sle.
b. Brother International Corporation: www.brother-usa.com/#sle.
c. Panduit Corp: www.panduit.com/#sle.
d. Substitutions: See Section 01 60 00 - Product Requirements.
2. Materials: Use self-adhesive laminated plastic labels; UV, chemical, water, heat, and abrasion resistant.
a. Use only for indoor locations.
3. Text: Use factory pre-printed or machine-printed text. Do not use handwritten text unless otherwise indicated.

C. Format for Equipment Identification:
1. Minimum Size: 1.5 inches by 4 inches.
2. Legend:
a. System designation where applicable:
1) Fire Alarm System: Identify with text "FIRE ALARM".
b. Equipment designation or other approved description.
c. Voltage and phase (single-phase or 3-phase).
d. Power source and circuit number.
e. Other information as indicated.
3. Text: All capitalized unless otherwise indicated.
4. Minimum Text Height:
a. System Designation: 1 inch.
b. Equipment Designation: 1/4 inch.
c. Other Information: 1/4 inch.
d. Exception: Provide minimum text height of 1 inch for equipment located more than 10 feet above floor or working platform.
5. Color:
a. Normal Power System: Black text on white background.
b. Fire Alarm System: White text on red background.

D. Format for General Information and Operating Instructions:
1. Minimum Size: 2 inches by 4 inches.
2. Legend: Include information or instructions indicated or as required for proper and safe operation and maintenance.
3. Text: All capitalized unless otherwise indicated.
4. Minimum Text Height: 1/4 inch.
5. Color: White text on blue background unless otherwise indicated.
a. Exceptions:
1) Provide white text on red background for general information or operational instructions for fire alarm systems.

E. Format for Caution and Warning Messages:
1. Minimum Size: 2 inches by 4 inches.
2. Legend: Include information or instructions indicated or as required for proper and safe operation and maintenance.
3. Text: All capitalized unless otherwise indicated.
4. Minimum Text Height: 1/2 inch.
5. Color: Black text on yellow background unless otherwise indicated.

F. Format for Receptacle Identification:
1. Minimum Size: 3/8 inch by 1.5 inches.
2. Legend: Power source and circuit number or other designation indicated.

3. Text: All capitalized unless otherwise indicated.
4. Minimum Text Height: 3/16 inch.
5. Color: Black text on clear background.

G. Format for Control Device Identification (toggle switches, motor starters, etc.):
1. Minimum Size: 3/8 inch by 1.5 inches.
2. Legend: Load controlled, power source and circuit number or other designation indicated.
3. Text: All capitalized unless otherwise indicated.
4. Minimum Text Height: 3/16 inch.
5. Color: Black text on clear background.

H. Format for Fire Alarm Device Identification:
1. Minimum Size: 3/8 inch by 1.5 inches.
2. Legend: Designation indicated and device zone or address.
3. Text: All capitalized unless otherwise indicated.
4. Minimum Text Height: 3/16 inch.
5. Color: White text on red background.

2.03 WIRE AND CABLE MARKERS

A. Manufacturers:
1. Brady Corporation: www.bradyid.com/#sle.
2. HellermannTyton: www.hellermanntyton.com/#sle.
3. Panduit Corp: www.panduit.com/#sle.
4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Markers for Conductors and Cables: Use heat-shrink sleeve type markers suitable for the conductor or cable to be identified.
1. Do not use self-adhesive type markers.

C. Markers for Conductor and Cable Bundles: Use plastic marker tags secured by nylon cable ties.

D. Legend: Power source and circuit number or other designation indicated.

E. Text: Use factory pre-printed or machine-printed text, all capitalized unless otherwise indicated.
1. Do not use handwritten text.

F. Minimum Text Height: 1/8 inch.

G. Color: Black text on white background unless otherwise indicated.

2.04 VOLTAGE MARKERS

A. Manufacturers:
1. Brady Corporation: www.bradyid.com/#sle.
2. Brimar Industries, Inc: www.brimar.com/#sle.
3. Seton Identification Products: www.seton.com/#sle.
4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Markers for Conduits: Use factory pre-printed self-adhesive vinyl, self-adhesive vinyl cloth, or vinyl snap-around type markers.

C. Markers for Boxes and Equipment Enclosures: Use factory pre-printed self-adhesive vinyl or self-adhesive vinyl cloth type markers.

D. Minimum Size:
1. Markers for Conduits: As recommended by manufacturer for conduit size to be identified.
2. Markers for Pull Boxes: 1 1/8 by 4 1/2 inches.
3. Markers for Junction Boxes: 1/2 by 2 1/4 inches.

E. Legend:
1. Markers for System Identification:
a. Other Systems: Type of service.

F. Color: Black text on orange background unless otherwise indicated.

2.05 FLOOR MARKING TAPE

A. Manufacturers:
1. Brady Corporation: www.bradyid.com/#sle.
2. Brimar Industries, Inc: www.brimar.com/#sle.
3. Insite Solutions, LLC: www.stop-painting.com/#sle.
4. Seton Identification Products: www.seton.com/#sle.
5. Substitutions: See Section 01 60 00 - Product Requirements.

B. Floor Marking Tape for Equipment Working Clearance Identification: Self-adhesive vinyl or polyester tape with overlaminate, 3 inches wide, with alternating black and white stripes.

2.06 WARNING SIGNS AND LABELS

A. Manufacturers:
1. Brimar Industries, Inc: www.brimar.com/#sle.
2. Clarion Safety Systems, LLC: www.clarionsafety.com/#sle.
3. Insite Solutions, LLC: www.stop-painting.com/#sle.
4. Seton Identification Products: www.seton.com/#sle.
5. Substitutions: See Section 01 60 00 - Product Requirements.

B. Comply with ANSI Z535.2 or ANSI Z535.4 as applicable.

C. Warning Signs:
1. Materials:
a. Indoor Dry, Clean Locations: Use factory pre-printed rigid plastic or self-adhesive vinyl signs.
b. Outdoor Locations: Use factory pre-printed rigid aluminum signs.
2. Rigid Signs: Provide four mounting holes at corners for mechanical fasteners.
3. Minimum Size: 7 by 10 inches unless otherwise indicated.

D. Warning Labels:
1. Materials: Use factory pre-printed or machine-printed self-adhesive polyester or self-adhesive vinyl labels; UV, chemical, water, heat, and abrasion resistant; produced using materials recognized to UL 969.
a. Do not use labels designed to be completed using handwritten text.
2. Machine-Printed Labels: Use thermal transfer process printing machines and accessories recommended by label manufacturer.
3. Minimum Size: 2 by 4 inches unless otherwise indicated.

PART 3 EXECUTION

3.01 PREPARATION

A. Clean surfaces to receive adhesive products according to manufacturer's instructions.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install identification products to be plainly visible for examination, adjustment, servicing, and maintenance. Unless otherwise indicated, locate products as follows:
1. Surface-Mounted Equipment: Enclosure front.
2. Flush-Mounted Equipment: Enclosure front.
3. Free-Standing Equipment: Enclosure front; also enclosure rear for equipment with rear access.
4. Elevated Equipment: Legible from the floor or working platform.
5. Interior Components: Legible from the point of access.
6. Conduits: Legible from the floor.
7. Boxes: Outside face of cover.
8. Conductors and Cables: Legible from the point of access.

9. Devices: Outside face of cover.

C. Install identification products centered, level, and parallel with lines of item being identified.

D. Secure nameplates to exterior surfaces of enclosures using stainless steel screws or epoxy cement and to interior surfaces using self-adhesive backing or epoxy cement.

E. Install self-adhesive labels and markers to achieve maximum adhesion, with no bubbles or wrinkles and edges properly sealed.

F. Secure rigid signs using stainless steel screws.

3.03 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for additional requirements.

B. Replace self-adhesive labels and markers that exhibit bubbles, wrinkles, curling or other signs of improper adhesion.

END OF SECTION

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SECTION 26 05 83
WIRING CONNECTIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical connections to equipment.

1.02 RELATED REQUIREMENTS

A. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables.

B. Section 26 05 33.13 - Conduit for Electrical Systems.

C. Section 26 05 33.16 - Boxes for Electrical Systems.

1.03 REFERENCE STANDARDS

A. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.
   2. Determine connection locations and requirements.

B. Sequencing:
   1. Install rough-in of electrical connections before installation of equipment is required.
   2. Make electrical connections before required start-up of equipment.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Products: Listed, classified, and labeled as suitable for the purpose intended.

C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

PART 2 PRODUCTS

2.01 MATERIALS

A. Flexible Conduit: As specified in Section 26 05 33.13.

B. Wire and Cable: As specified in Section 26 05 19.

C. Boxes: As specified in Section 26 05 33.16.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.02 ELECTRICAL CONNECTIONS

A. Make electrical connections in accordance with equipment manufacturer's instructions.

B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.

C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.

D. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.

E. Install terminal block jumpers to complete equipment wiring requirements.

F. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

END OF SECTION

SECTION 26 27 26
WIRING DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall switches.

B. Wall dimmers.

C. Receptacles.

D. Wall plates and covers.

E. Floor box service fittings.

1.02 RELATED REQUIREMENTS

A. Section 26 05 26 - Grounding and Bonding for Electrical Systems.

B. Section 26 05 33.16 - Boxes for Electrical Systems.

C. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

B. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2016.

C. NEMA WD 1 - General Color Requirements for Wiring Devices; 1999 (Reaffirmed 2020).

D. NEMA WD 6 - Wiring Devices - Dimensional Specifications; 2021.

E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

F. UL 20 - General-Use Snap Switches; Current Edition, Including All Revisions.

G. UL 498 - Attachment Plugs and Receptacles; Current Edition, Including All Revisions.

H. UL 514D - Cover Plates for Flush-Mounted Wiring Devices; Current Edition, Including All Revisions.

I. UL 943 - Ground-Fault Circuit-Interrupters; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate the placement of outlet boxes with millwork, furniture, equipment, etc. installed under other sections or by others.
2. Coordinate wiring device ratings and configurations with the electrical requirements of actual equipment to be installed.
3. Coordinate the placement of outlet boxes for wall switches with actual installed door swings.
4. Coordinate the installation and preparation of uneven surfaces, such as split face block, to provide suitable surface for installation of wiring devices.
5. Notify DEDC, LLC of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

B. Sequencing:

1. Do not install wiring devices until final surface finishes and painting are complete.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.

C. Field Quality Control Test Reports.

D. Operation and Maintenance Data:
   1. Wall Dimmers: Include information on operation and setting of presets.
   2. GFCI Receptacles: Include information on status indicators.

E. Project Record Documents: Record actual installed locations of wiring devices.

F. Maintenance Materials: Furnish the following for State of Delaware OMB - Division of Facilities Management's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Wall Plates: Two of each style, size, and finish.
   3. Extra Flush Floor Service Fittings: Two of each type.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

D. Products: Listed, classified, and labeled as suitable for the purpose intended.

E. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND PROTECTION

A. Store in a clean, dry space in original manufacturer's packaging until ready for installation.

PART 2 PRODUCTS

2.01 WIRING DEVICES - GENERAL REQUIREMENTS

A. Provide wiring devices suitable for intended use with ratings adequate for load served.

B. Except where explicitly permitted, substitution of combination switch-and-receptacle devices for separate switches and receptacles is not permitted.

C. Wiring Device Applications:
   1. Receptacles Installed Outdoors or in Damp or Wet Locations: Use weather-resistant GFCI receptacles with weatherproof covers.
   2. Provide GFCI protection for:
      a. Receptacles installed within 6 feet of sinks.
      b. Receptacles installed in kitchens.
      c. Receptacles serving electric drinking fountains.
   3. Single Receptacles Installed on Individual Branch Circuits: Provide receptacle ampere rating equal to branch circuit rating.
   4. Flush Floor Service Fittings in Carpeted Floors: Use carpet flanges.

D. Wiring Device Finishes:
   1. Provide wiring device finishes as described below, unless otherwise indicated.
      a. Wiring Devices Installed in Finished Spaces: White with white nylon wall plate.
      b. Wiring Devices Installed in Unfinished Spaces: White with raised galvanized steel wall plate.
      c. Wiring Devices Installed in Wet or Damp Locations: White with weatherproof cover.
      d. Flush Floor Box Service Fittings: White wiring devices with brass cover and ring/flange.

2.02 WALL SWITCHES

A. Manufacturers:
   1. Eaton Corporation: www.eaton.com/#sle.
   2. Hubbell Incorporated: www.hubbell.com/#sle.

3. Leviton Manufacturing Company, Inc: www.leviton.com/#sle.
4. Pass & Seymour, a brand of Legrand North America, Inc: www.legrand.us/#sle.
5. Substitutions: See Section 01 60 00 - Product Requirements.

B. Wall Switches - General Requirements: AC only, quiet operating, general-use snap switches with silver alloy contacts, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 20; types as indicated on the drawings.
1. Wiring Provisions: Terminal screws for side wiring and screw actuated binding clamp for back wiring with separate ground terminal screw.

C. Standard Wall Switches: Industrial specification grade, 20 A, 120/277 V with standard toggle type switch actuator and maintained contacts; single pole single throw as indicated on the drawings.
1. Accessories:
a. Lockable Toggle Guard: Provide permanent padlockable toggle guard where indicated on drawings.

D. Low-Voltage Wall Switches: Provide low-voltage on/off switches suitable for use with digital load controllers
1. Manufacturers: Same as digital load controllers.
2. Characteristics: As indicated on drawings.

2.03 WALL DIMMERS

A. Low-Voltage Wall Dimmers: Provide low-voltage dimming switches suitable for use with digital load controllers
1. Manufacturers: Same as digital load controllers.
2. Characteristics: As indicated on drawings.

2.04 RECEPTACLES

A. Manufacturers:
1. Eaton Corporation: www.eaton.com/#sle.
2. Hubbell Incorporated: www.hubbell.com/#sle.
3. Leviton Manufacturing Company, Inc: www.leviton.com/#sle.
4. Pass & Seymour, a brand of Legrand North America, Inc: www.legrand.us/#sle.
5. Substitutions: See Section 01 60 00 - Product Requirements.

B. Receptacles - General Requirements: Self-grounding, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 498; types as indicated on the drawings.
1. Wiring Provisions: Terminal screws for side wiring or screw actuated binding clamp for back wiring with separate ground terminal screw.
2. NEMA configurations specified are according to NEMA WD 6.

C. Convenience Receptacles:
1. Tamper Resistant Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA 5-20R, listed and labeled as tamper resistant type; single or duplex as indicated on the drawings.
2. Automatically Controlled Tamper Resistant Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA 5-20R, single controlled face split-wired (where duplex); controlled receptacle marking on device face per NFPA 70; listed and labeled as tamper resistant type; single or duplex as indicated on the drawings.

D. GFCI Receptacles:
1. GFCI Receptacles - General Requirements: Self-testing, with feed-through protection and light to indicate ground fault tripped condition and loss of protection; listed as complying with UL 943, class A.
2. Tamper Resistant and Weather Resistant GFCI Receptacles: Industrial specification grade, duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style, listed and labeled as tamper resistant type and as weather resistant type complying with UL 498 Supplement SD suitable for installation in damp or wet locations.

2.05 WALL PLATES AND COVERS

A. Manufacturers:
   1. Eaton Corporation: www.eaton.com/#sle.
   2. Hubbell Incorporated: www.hubbell-wiring.com/#sle.
   3. Leviton Manufacturing Company, Inc: www.leviton.com/#sle.
   4. Pass & Seymour, a brand of Legrand North America, Inc: www.legrand.us/#sle.
   5. Substitutions: See Section 01 60 00 - Product Requirements.

B. Wall Plates: Comply with UL 514D.
   1. Configuration: One piece cover as required for quantity and types of corresponding wiring devices.
   2. Size: Standard.
   3. Screws: Metal with slotted heads finished to match wall plate finish.

C. Nylon Wall Plates: Smooth finish, high-impact thermoplastic.

D. Raised Galvanized Steel Wall Plates: Rounded corners and edges, with corrosion resistant screws.

E. Weatherproof Receptacle Covers for Wet or Damp Locations: Gasketed, cast aluminum, with hinged lockable cover and corrosion-resistant screws; listed as suitable for use in wet locations while in use with attachment plugs connected and identified as extra-duty type.

2.06 FLOOR BOX SERVICE FITTINGS

A. Manufacturers:
   1. Hubbell Incorporated: www.hubbell.com/#sle.
   2. Thomas & Betts Corporation: www.tnb.com/#sle.
   3. Wiremold, a brand of Legrand North America, Inc: www.legrand.us/#sle.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Description: Service fittings compatible for use with existing floor boxes with components, adapters and trims as required for complete installation.

C. Flush Floor Service Fittings:
   1. Single Service Flush Convenience Receptacles:
      a. Cover: Rectangular.
      b. Configuration: One standard convenience duplex receptacle(s) with duplex flap opening(s).
   2. Accessories:
      a. Carpet Flanges: Finish to match covers; configuration as required to accommodate specified covers.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate devices and conductors in accordance with NFPA 70.

C. Verify that wall openings are neatly cut and will be completely covered by wall plates.

D. Verify that final surface finishes are complete, including painting.

E. Verify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

F. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Provide extension rings to bring outlet boxes flush with finished surface.

B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards unless otherwise indicated.

B. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of wiring devices provided under this section.
   1. Mounting Heights: Unless otherwise indicated, as follows:
      a. Wall Switches: 48 inches above finished floor.
      b. Wall Dimmers: 48 inches above finished floor.
      c. Receptacles: 18 inches above finished floor or 6 inches above counter.
   2. Orient outlet boxes for vertical installation of wiring devices unless otherwise indicated.
   3. Where multiple receptacles, wall switches, or wall dimmers are installed at the same location and at the same mounting height, gang devices together under a common wall plate.
   4. Locate wall switches on strike side of door with edge of wall plate 3 inches from edge of door frame. Where locations are indicated otherwise, notify DEDC, LLC to obtain direction prior to proceeding with work.

C. Install wiring devices in accordance with manufacturer's instructions.

D. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.

E. Where required, connect wiring devices using pigtails not less than 6 inches long. Do not connect more than one conductor to wiring device terminals.

F. Connect wiring devices by wrapping conductor clockwise 3/4 turn around screw terminal and tightening to proper torque specified by the manufacturer. Where present, do not use push-in pressure terminals that do not rely on screw-actuated binding.

G. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.

H. Provide GFCI receptacles with integral GFCI protection at each location indicated. Do not use feed-through wiring to protect downstream devices.

I. Where split-wired duplex receptacles are indicated, remove tabs connecting top and bottom receptacles.

J. Install wiring devices plumb, secure and level with mounting yoke held rigidly in place.

K. Install wall switches with OFF position down.

L. Install vertically mounted receptacles with grounding pole on top and horizontally mounted receptacles with grounding pole on left.

M. Install wall plates to fit completely flush to wall with no gaps and rough opening completely covered without strain on wall plate. Repair or reinstall improperly installed outlet boxes or improperly sized rough openings. Do not use oversized wall plates in lieu of meeting this requirement.

N. Install blank wall plates on junction boxes and on outlet boxes with no wiring devices installed or designated for future use.

O. Identify wiring devices in accordance with Section 26 05 53.

P. Install raised galvanized steel cover plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface mounted switches & receptacles.

3.04 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for additional requirements.

B. Inspect each wiring device for damage and defects.

C. Operate each wall switch and wall dimmer with circuit energized to verify proper operation.

D. Test each receptacle to verify operation and proper polarity.

E. Test each GFCI receptacle for proper tripping operation according to manufacturer's instructions.

F. Correct wiring deficiencies and replace damaged or defective wiring devices.

3.05 ADJUSTING

A. Adjust devices and wall plates to be flush and level.

3.06 CLEANING

A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

END OF SECTION

SECTION 26 28 16.13
ENCLOSED CIRCUIT BREAKERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. New molded case circuit breakers to be installed in existing panelboards and/or switchboards.

1.02 RELATED REQUIREMENTS

A. Section 26 05 26 - Grounding and Bonding for Electrical Systems.

B. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

B. NETA ATS - Standard for Acceptance Testing Specifications for Electrical Power Equipment And Systems; 2025.

C. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

D. UL 489 - Molded-Case Circuit Breakers, Molded-Case Switches and Circuit Breaker Enclosures; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate work with other trades. Avoid placement of ductwork, piping, equipment, or other potential obstructions within dedicated equipment spaces and within working clearances for electrical equipment required by NFPA 70.
   2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
   3. Verify with manufacturer that conductor terminations are suitable for use with the conductors to be installed.
   4. Notify DEDC, LLC of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for circuit breakers, enclosures, and other installed components and accessories.
   1. Include characteristic trip curves for each type and rating of circuit breaker.

C. Shop Drawings: Indicate outline and support point dimensions, voltage and current ratings, short circuit current ratings, conduit entry locations, conductor terminal information, and installed features and accessories.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

D. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

B. Handle carefully in accordance with manufacturer's written instructions to avoid damage to enclosed circuit breaker internal components, enclosure, and finish.

1.08 FIELD CONDITIONS

A. Maintain ambient temperature between 23 degrees F and 104 degrees F during and after installation of enclosed circuit breakers.

1.09 WARRANTY

A. Provide minimum 2 year warranty from date of substantial completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. ABB/GE: www.geindustrial.com/#sle.

B. Eaton Corporation: www.eaton.com.

C. Schneider Electric; Square D Products: www.schneider-electric.us.

D. Siemens Industry, Inc: www.usa.siemens.com.

E. Substitutions: See Section 01 60 00 - Product Requirements.

F. Source Limitations: Furnish molded case circuit breakers and associated components produced by the same (or compatible) manufacturers as the existing panelboards and/or switchboards in which they will be installed.

2.02 MOLDED CASE CIRCUIT BREAKERS

A. Description: Quick-make, quick-break, over center toggle, trip-free, trip-indicating circuit breakers listed and labeled as complying with UL 489; ratings, configurations, and features as indicated on the drawings.

B. Provide products listed and labeled by Underwriters Laboratories Inc. or testing firm acceptable to the authority having jurisdiction as suitable for the purpose indicated.

C. Interrupting Capacity:
   1. Provide circuit breakers with interrupting capacity as required to provide the short circuit current rating not less than the available fault current at the installed location.

D. Conductor Terminations:
   1. Provide mechanical lugs unless otherwise indicated.
   2. Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.

E. Thermal Magnetic Circuit Breakers: For each pole, furnish thermal inverse time tripping element for overload protection and magnetic instantaneous tripping element for short circuit protection.
   1. Provide field-adjustable magnetic instantaneous trip setting for circuit breaker frame sizes 225 amperes and larger.

F. Electronic Trip Circuit Breakers: Furnish solid state, microprocessor-based, true rms sensing trip units.
   1. Provide the following field-adjustable trip response settings:
      a. Long time pickup, adjustable by replacing interchangeable trip unit or by setting dial.
      b. Long time delay.
      c. Short time pickup and delay.
      d. Instantaneous pickup.

G. Multi-Pole Circuit Breakers: Furnish with common trip for all poles.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that the ratings of the enclosed circuit breakers are consistent with the indicated requirements.

C. Verify that mounting surfaces are ready to receive enclosed circuit breakers.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Except where indicated to be mounted adjacent to the equipment they supply, mount enclosed circuit breakers such that the highest position of the operating handle does not exceed 79 inches above the floor or working platform.

D. Provide grounding and bonding in accordance with Section 26 05 26.

E. Identify enclosed circuit breakers in accordance with Section 26 05 53.

F. Provide arc flash warning labels in accordance with NFPA 70.

3.03 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for additional requirements.

B. Inspect and test in accordance with manufacturer's instructions and NETA ATS, except Section 4.

C. Perform inspections and tests listed in NETA ATS, Section 7.6.1.1. Tests listed as optional are not required.

D. Correct deficiencies and replace damaged or defective enclosed circuit breakers.

E. Perform several mechanical ON-OFF operations on each circuit breaker.

F. Verify circuit continuity on each pole in closed position.

G. Determine that circuit breaker will trip on overcurrent condition, with tripping time to NEMA AB 1 requirements.

H. Include description of testing and results in test report.

3.04 ADJUSTING

A. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.

3.05 CLEANING

A. Clean dirt and debris from circuit breaker enclosures and components according to manufacturer's instructions.

B. Repair scratched or marred exterior surfaces to match original factory finish.

END OF SECTION

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SECTION 26 51 00
INTERIOR LIGHTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Interior luminaires.

B. Ballasts and drivers.

C. Emergency power supply units.

D. Lamps.

E. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 26 05 26 - Grounding and Bonding for Electrical Systems.

B. Section 26 05 29 - Hangers and Supports for Electrical Systems.

C. Section 26 05 33.16 - Boxes for Electrical Systems.

D. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.

E. Section 26 27 26 - Wiring Devices: Manual wall switches and wall dimmers.

1.03 REFERENCE STANDARDS

A. IES LM-63 - Approved Method: IES Standard File Format for the Electronic Transfer of Photometric Data and Related Information; 2019.

B. IES LM-79 - Approved Method: Optical and Electrical Measurements of Solid-State Lighting Products; 2024.

C. IES LM-80 - Approved Method: Measuring Maintenance of Light Output Characteristics of Solid-State Light Sources; 2021.

D. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

E. NECA/IESNA 500 - Standard for Installing Indoor Lighting Systems; 2006.

F. NECA/IESNA 502 - Standard for Installing Industrial Lighting Systems; 2006.

G. NEMA 410 - Performance Testing for Lighting Controls and Switching Devices with Electronic Drivers and Discharge Ballasts; 2023.

H. NEMA LE 4 - Recessed Luminaires, Ceiling Compatibility; 2023.

I. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

J. UL 1598 - Luminaires; Current Edition, Including All Revisions.

K. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate the installation of luminaires with mounting surfaces installed under other sections or by others. Coordinate the work with placement of supports, anchors, etc. required for mounting. Coordinate compatibility of luminaires and associated trims with mounting surfaces at installed locations.
2. Coordinate the placement of luminaires with structural members, ductwork, piping, equipment, diffusers, fire suppression system components, and other potential conflicts installed under other sections or by others.
3. Notify DEDC, LLC of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Shop Drawings:
   1. Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.
   2. Provide photometric calculations where luminaires are proposed for substitution upon request.

C. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, installed accessories, and ceiling compatibility; include model number nomenclature clearly marked with all proposed features.
   1. LED Luminaires:
      a. Include estimated useful life, calculated based on IES LM-80 test data.
      b. Include IES LM-79 test report for proposed substitutions.
   2. Provide electronic files of photometric data certified by a National Voluntary Laboratory Accreditation Program (NVLAP) lab or independent testing agency in IES LM-63 standard format upon request.
   3. Lamps: Include rated life, color temperature, color rendering index (CRI), and initial and mean lumen output.

D. Field quality control reports.

E. Maintenance Materials: Furnish the following for State of Delaware OMB - Division of Facilities Management's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Lenses and Louvers: Two percent of total quantity installed for each type, but not less than one of each type.

F. Project Record Documents: Record actual connections and locations of luminaires and any associated remote components.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

D. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND PROTECTION

A. Receive, handle, and store products according to NECA/IESNA 500 (commercial lighting), NECA/IESNA 502 (industrial lighting), and manufacturer's written instructions.

B. Keep products in original manufacturer's packaging and protect from damage until ready for installation.

1.08 FIELD CONDITIONS

A. Maintain field conditions within manufacturer's required service conditions during and after installation.

1.09 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Provide 5-year manufacturer warranty for LED luminaires, including drivers.

C. Provide 10-year pro-rata warranty for batteries for self-powered exit signs.

PART 2 PRODUCTS

2.01 LUMINAIRE TYPES

A. Furnish products as indicated in luminaire schedule included on the drawings.

B. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 LUMINAIRES

A. Manufacturers:
   1. Basis of Design: EliteLighting: www.ieseelite.com. See drawing schedule
   2. Hubbell Outdoor Lighting: www.hubbell.com
   3. Lithonia: www.lithonia.acuitybrands.com
   4. Cooper: www.cooperlighting.com
   5. Signify Brands, Inc: www.signify.com/#sle.
   6. Substitutions: See Section 01 60 00 - Product Requirements.

B. Type A1:
   1. Basis of Design: EliteLighting: www.ieseelite.com. See drawing schedule
   2. Configuration: 32W, 3500K
   3. Voltage: 120-277 V

C. Type A1E:
   1. Basis of Design: EliteLighting: www.ieseelite.com. See drawing schedule
   2. Configuration: 36W, 3500K
   3. Voltage: 120-277 V

D. Type B1:
   1. Basis of Design: EliteLighting: www.ieseelite.com. See drawing schedule
   2. Configuration: 19W, 3500K
   3. Voltage: 120-277 V

E. Type B1E:
   1. Basis of Design: EliteLighting: www.ieseelite.com. See drawing schedule
   2. Configuration: 23W, 3500K
   3. Voltage: 120-277 V

F. Type B2:
   1. Basis of Design: EliteLighting: www.ieseelite.com. See drawing schedule
   2. Configuration: 19W, 3500K
   3. Voltage: 120-277 V

G. Provide products that comply with requirements of NFPA 70.

H. Provide products that are listed and labeled as complying with UL 1598, where applicable.

I. Provide products listed, classified, and labeled as suitable for the purpose intended.

J. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.

K. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, supports, trims, accessories, etc. as necessary for a complete operating system.

L. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.

M. Recessed Luminaires:
   1. Ceiling Compatibility: Comply with NEMA LE 4.
   2. Luminaires Recessed in Insulated Ceilings: Listed and labeled as IC-rated, suitable for direct contact with insulation and combustible materials.

N. LED Luminaires:
   1. Components: UL 8750 recognized or listed as applicable.
   2. Tested in accordance with IES LM-79 and IES LM-80.
   3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.

2.03 BALLASTS AND DRIVERS

A. Ballasts/Drivers - General Requirements:
   1. Provide ballasts/drivers with characteristics as indicated in the luminaire schedule included on the drawings.
   2. Provide ballasts/drivers containing no polychlorinated biphenyls (PCBs).
   3. Minimum Efficiency/Efficacy: Provide ballasts/drivers complying with all current applicable federal and state ballast efficiency/efficacy standards.
   4. Electronic Ballasts/Drivers: Inrush currents not exceeding peak currents specified in NEMA 410.

B. Dimmable LED Drivers:
   1. Dimming Range: Continuous dimming from 100 percent to five percent relative light output unless dimming capability to lower level is indicated, without flicker.
   2. Control Compatibility: Fully compatible with the dimming controls to be installed.
      a. Wall Dimmers: See Section 26 27 26.

2.04 EMERGENCY POWER SUPPLY UNITS

A. Manufacturers:
   1. Dual-Lite: www.currentlighting.com/dual-lite/#sle.
   2. Evenlite, Inc: www.evenlite.com/#sle.
   3. Iota Engineering, LLC: www.iotaengineering.com/#sle.
   4. Lithonia Lighting: www.lithonia.com/#sle.
   5. Philips Emergency Lighting/Bodine: www.bodine.com/#sle.
   6. Substitutions: See Section 01 60 00 - Product Requirements.
   7. Manufacturer Limitations: Where possible, for each type of luminaire provide emergency power supply units produced by single manufacturer.

B. Description: Self-contained emergency power supply units suitable for use with indicated luminaires, complying with NFPA 101 and applicable state and local codes, and listed and labeled as complying with UL 924.

C. Compatibility:
   1. Drivers: Compatible standard, energy saving, and dimming AC LED drivers, including those with end of lamp life shutdown circuits.
   2. Lamps: Compatible with LED

D. Operation: Upon interruption of normal power source, solid-state control automatically switches connected lamps to emergency power supply for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.

E. Battery: Sealed maintenance-free high-temperature nickel cadmium unless otherwise indicated.

F. Emergency Illumination Output:
   1. Luminaires with LED Lamps: Operate LED drivers at minimum of 1000 lumens unless otherwise indicated with illumination evenly divided among the drivers.

G. Diagnostics: Provide accessible and visible multi-chromatic combination test switch/indicator light to display charge, test, and diagnostic status and to manually activate emergency operation.

H. Operating Temperature: From 32 degrees F to 122 degrees F unless otherwise indicated or required for the installed location.

I. Accessories:

1. Provide compatible accessory remote combination test switch/indicator light where indicated.

2.05 LAMPS

A. Manufacturers:
   1. As standard per luminaire manufacturers.

B. Lamps - General Requirements:
   1. Unless explicitly excluded, provide new, compatible, operable lamps in each luminaire.
   2. Verify compatibility of specified lamps with luminaires to be installed. Where lamps are not specified, provide lamps per luminaire manufacturer's recommendations.
   3. Minimum Efficiency: Provide lamps complying with all current applicable federal and state lamp efficiency standards.
   4. Color Temperature Consistency: Unless otherwise indicated, for each type of lamp furnish products which are consistent in perceived color temperature. Replace lamps that are determined by DEDC, LLC to be inconsistent in perceived color temperature.

2.06 ACCESSORIES

A. Provide accessory plaster frames for luminaires recessed in plaster ceilings.

B. Fire-Rated Luminaire Enclosures:
   1. Manufacturers:
      a. Fire Rated Product Specialties Corp: www.frpsonline.com/#sle.
      b. Specialty Products & Insulation (SPI); SafeLite: www.spi-co.com/#sle.
      c. Substitutions: See Section 01 60 00 - Product Requirements.
   2. Provide as required to preserve fire resistance rating of building elements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.

C. Verify that suitable support frames are installed where required.

D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.

E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Provide extension rings to bring outlet boxes flush with finished surface.

B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

A. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of luminaires provided under this section.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Install products in accordance with manufacturer's instructions.

D. Install luminaires securely, in a neat and workmanlike manner, as specified in NECA 500 (commercial lighting) and NECA 502 (industrial lighting).

E. Provide required support and attachment in accordance with Section 26 05 29.

F. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.

G. Suspended Ceiling Mounted Luminaires:
   1. Do not use ceiling tiles to bear weight of luminaires.

2. Do not use ceiling support system to bear weight of luminaires unless ceiling support system is certified as suitable to do so.
3. Secure surface-mounted and recessed luminaires to ceiling support channels or framing members or to building structure.
4. Secure pendant-mounted luminaires to building structure.
5. Secure lay-in luminaires to ceiling support channels using listed safety clips at four corners.
6. In addition to ceiling support wires, provide two galvanized steel safety wire(s), minimum 12 gauge, connected from opposing corners of each recessed luminaire to building structure.
7. See appropriate Division 9 section where suspended grid ceiling is specified for additional requirements.

H. Recessed Luminaires:
1. Install trims tight to mounting surface with no visible light leakage.
2. Non-IC Rated Luminaires: Maintain required separation from insulation and combustible materials according to listing.
3. Luminaires Recessed in Fire-Rated Ceilings: Install using accessories and firestopping materials to meet regulatory requirements for fire rating.

I. Wall-Mounted Luminaires: Unless otherwise indicated, specified mounting heights are to center of luminaire.

J. Install accessories furnished with each luminaire.

K. Bond products and metal accessories to branch circuit equipment grounding conductor.

L. Emergency Power Supply Units:
1. For field-installed units, install inside luminaire unless otherwise indicated. Where installation inside luminaire is not possible, install on top of luminaire.
2. Unless otherwise indicated, connect unit to unswitched power from same circuit feeding normal driver(s) in luminaire. Bypass local switches, contactors, or other lighting controls.
3. Install lock-on device on branch circuit breaker serving units.

M. Remote Ballasts: Install in accessible location as indicated or as required to complete installation, using conductors per manufacturer's recommendations not exceeding manufacturer's recommended maximum conductor length to luminaire.

N. Identify luminaires connected to emergency power system in accordance with Section 26 05 53.

O. Install lamps in each luminaire.

P. Lamp Burn-In: Operate lamps at full output for prescribed period per manufacturer's recommendations prior to use with any dimming controls. Replace lamps that fail prematurely due to improper lamp burn-in.

3.04 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for additional requirements.

B. Inspect each product for damage and defects.

C. Operate each luminaire after installation and connection to verify proper operation.

D. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts as determined by DEDC, LLC.

3.05 ADJUSTING

A. Aim and position adjustable luminaires to achieve desired illumination as indicated or as directed by DEDC, LLC. Secure locking fittings in place.

3.06 CLEANING

A. Clean surfaces according to NECA 500 (commercial lighting), NECA 502 (industrial lighting), and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

3.07 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 proper operation of luminaires to DEDC, LLC, and correct deficiencies or make adjustments as directed.

D. Just prior to Substantial Completion, replace all lamps that have failed.

3.08 PROTECTION

A. Protect installed luminaires from subsequent construction operations.

3.09 LUMINAIRE SCHEDULE - SEE DRAWINGS

END OF SECTION